

A  
T R E A T I S E  
ON THE  
DISORDERS and DEFORMITIES  
OF THE  
T E E T H and G U M S.

C O N T A I N I N G,

The medical and surgical Treatment of each Case, the Care of Children in Dentition, and the various Methods which most effectually conduce to Regularity, Beauty, and Duration of these Parts in every Stage of Life. Together with Observations on the Use and Abuse of Tinctures, Tooth-Powders, Brushes, &c. and Strictures on the present Practice, wherever it is found deceitful or pernicious.

The Whole illustrated with Cases and Experiments, intended for general Use.

By T H O M A S B E R D M O R E,

Of the Surgeons Company, and Surgeon-Dentist to his Majesty.

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*Et mihi dulces*  
*Ignoscent, si quid peccaverò stultus, amici.* HOR. SAT.

---

D U B L I N :

Printed by JOHN EXSHAW, in Dame-street  
M DCC LXIX.





T O

PENNEL HAWKINS, Esq;

Surgeon Extraordinary to his Majesty,  
Surgeon in Ordinary to her Majesty,  
and to his Majesty's Household.

S I R,

**W**ERE this little treatise finished and correct in a manner worthy of your acceptance, I should with pleasure have offered it as a grateful testimony of the truest respect and esteem.—

But my early application to an art such as I profess, the hurry of my business, and my inability as a writer, deny me the honour and pleasure of making an address of that kind with due propriety.—

A 2

And

iv DEDICATION.

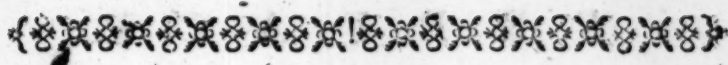
And until fortune shews herself more favourable to my wishes and intention, instead of making a grateful return, I must add to the obligations which I already owe you, by placing under the sanction of your name these weak but well-meant endeavours, sensible of the favour which a work of this kind is likely to meet, when countenanced and supported by a gentleman so amiable in his character, and so justly distinguished in his profession.

I am, Sir,

with the greatest respect,

Your most obedient servant,

T. BERDMORE.



T H E

# P R E F A C E.

**W**HEN first I resolved to devote my whole time and attention to that part of Surgery which concerns the Dentist's art, I observed with regret that no material instructions were to be derived from the writers of this country who have touched on the subject; therefore I endeavoured for my own improvement to collect carefully from my predecessors in business, and from practice, whatever I thought conducive to the advancement of it.

After a few years thus employed, I conceived, and I hope with no impropriety, that my observations and discoveries, were worthy of being communicated to those who practise in this business, to

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the Parents who are solicitous for the health and beauty of their Child, and to the Patients who are affected with disorders or deformities of the Teeth. I therefore endeavoured to reduce them to some order, and at last resolved to commit them to the press.

The work being originally designed for Artists, *who are not much given to reading*, and for Patients who do not love too much trouble, I purposely avoided quotations. Indeed, without departing from the subject, I could only have quoted and made known a few French authors, and one or two English, who have injudiciously translated some pieces on the subject.

Soon after this work was delivered to the printer, an advertisement appeared in the daily papers, promising a speedy publication of a treatise on the same subject, by a foreigner at the west-end of the town: Expecting to be instructed  
and

P R E F A C E. vii

and informed by a careful perusal of it, I suppressed the publication of these sheets for a considerable time. Now, I am forced to acknowledge that I am disappointed, and that this delay has proved unnecessary; therefore with due respect, I presume to offer this piece as first finished, resting upon the knowledge already acquired, and information collected wherever it was to be found, so as to render it acceptable, not only to *Practitioners*, but to the *Public in general*, the care of whom I had strongly in my mind during the process, and to whom I hope it will prove an acceptable offering, affording relief in distress, and be a preventative of many evils, both to themselves and their *Little-ones*.







*The general use this Piece is intended for, has made it necessary to give an explanation of the following tetchnical Terms, which are unavoidable in a Treatise of this sort, and which may not be familiar to those who have occasion to consult it.*

## A

*A***bsorbents**, Remedies which imbibe or dry away (as with a sponge) superfluous moistures.

*Acerb*, being sour attended with roughness.

*Acrid*, of a hot, biting taste, and possessing that quality in Bodies, that eats up, or destroys what it touches.

*Alveoli*, the sockets or hollow parts of the jaws, from whence the Teeth proceed.

*Antrum*, a small cavity that appears in the sinus, or hollow of each Maxillary bone.

*Arteries*, the Canals by which the Blood passes from the heart.

*Articulation*, a joining together of the Bones, for the due performance of motion.

*Astringents*, such bodies as have power of contracting the Parts, or diminishing the Pores thereof.

*Auditory*, that which belongs to the sense of hearing.

B

*Balsamicks*, such bodies as soften, and break the humours into finer parts.

C

*Camphorated*, impregnated with Camphor.

*Cancellated*, cross-barred.

*Carotides*, two Arteries, passing on each side of the Neck, to convey the blood to the Brain from the *Aorta* or great Artery that arises immediately from the Heart.

*Caries*, a rottenness peculiar to the bony part of the Body.

*Cautery*, a medicine wherewith to burn, or sere any solid part; of these are two, *actual*, and *potential*; the first a red hot iron, the other medicinal compositions.

*Conical*, of the form of a sugar Loaf, or Pyramid, having a Circle for its Base, and the other extremity terminating in a Point.

*Crucial*, a Cut or Incision in the form of a Cross, intersecting each other.

D

*Defluxion*, the falling of humours, from whence they are collected.

*Deglutition*, the Act of swallowing.

*Dentes Sapientes*, the Teeth that appear at Manhood,



**Manhood**, which are two double Teeth, at the extremity of the jaw.

*Dentition*, the time when teeth begin first to appear.

*Diagnostic*, signs by which Disorders are distinguished, or their present state known.

*Diaphragm*, the partition that divides the upper cavity of the Body from the lower, or any partition that divides a hollow Body.

*Diploe*, the inner part or coat of the skull, of a spongy substance, easily imbibing the blood, and is separated into an infinite number of little cells, which receive several small branches of Arteries from the Brain.

*Dissipation*, an insensible loss, or consumption of the minute parts of the Body; or more properly, the flux whereby they fly off, and are lost.

## E

*Elefluaries*, Medicines formed to the consistence of Honey.

*Embryo*, the first formation, not yet perfected.

*Emollients*, such bodies as are of a softening ture.

*Erosion*, the action of eating away.

*Erysipelas*, an Inflammation particularly in the Face.

*Excrescences*, whatever unnecessarily proceeds from a Body; as Warts, Tetters, &c.

*Exfoliation*,

*Exfoliation*, a disposition to scale or come off in flakes.

*Exostosis*, an unnatural Protuberance of a Bone.

*Extravasated*, forced from their proper Vessels.

F

*Fissures*, longitudinal Fractures, or Fractures along the Bone.

*Fungous*, spongy, or soft swelling substances.

G

*Gomphosis*, the setting one bone into another, as the Teeth are in the sockets.

*Grumous*, thick, clotted, so as not to move freely.

H

*Hæmorrhage*, great discharge of Blood.

I

*Inosculate*, to unite parts at their Extremities.

*Inspissate*, thicken, or make less fluid,

*Integument*, any thing that covers, or in which any thing is wrapped up.

*Intestines*, the inward parts.

*Jugular*, belonging to the Neck, Throat or Wind-pipe.

L

*Laminated*, when Bodies are composed of Parts one laid over the other.

*Lentor*

*Lentor*, inclining to sizziness, by which motion is obstructed.

*Ligature*, a Bandage.

*Luxation*, when a Tooth is entirely, or in part, out of the socket.

M

*Mastication*, the act of chewing.

*Masticatory*, Medicines that are to be chewed.

*Maxillary sinus*, the hollow Parts of the Jaw.

*Maxilla*, the Jaw whether upper or under.

*Membrane*, a Web, composed of several Fibres, interwoven for the covering of some Part, which contracts, or expands with ease.

*Mucus*, glutinousness, sliminess.

N

*Nerves*, are the organs or conductors of Sensation, passing from the Brain to all the Parts of the Body, capable of it.

O

*Ossification*, tending to a Bony Substance.

*Orbits*, cavities in which the Eyes are placed.

P

*Parotid Glands*, are the external Fountains, that supply the Mouth with moisture, placed near the Ears.

*Pathology*, the discoverable effects of a Disorder.

*Periosteum*



*Periosteum*, a tough membrane, extremely sensible, covering the external surface of the Bones, the Teeth excepted.

*Physiology*, the Doctrine of Nature, or natural Bodies; but when used as relative to *Medicine*, is when the Disposition of the *human Body* is considered, in regard to the Cure of its Diseases; and when to a *particular Part*, teaches its Construction in the natural State, and for that purpose, account for the several Operations of the Parts belonging to it. *Pituitous*, consisting of phlegm.

*Protrusion*, the thrusting of any Body forward.

*Purulent Matter*, that which is discharged from a Wound, or Sore.

## R

*Resolution*, having the ability of being dissolved.

*Revulsion*, the act of drawing Humours from the remote parts of the Body.

## S

*Saliva*, a fluid separated by the Glands, and most commonly known by the appellation of spittle.

*Sedatives*, such bodies that upon application, mitigate, or appease Pain.

*Sinus*, a small cavity that appears at the side of a wound, where the Matter or Pus is collected.

*Solution*,



*Solution*, a Body in which another has been dissolved.

*Spasmodick*, convulsed, or contracted.

*Sternutative*, having the Power of causing sneezing.

*Stimulated*, stirred up from inaction.

*Suppuration*, the act of bringing the Matter of a Wound or sore to a discharge.

*Sympathetic*, having a mutual sensation, or being affected by what happens to another; and in the human Body, when one Part is affected, by the indisposition of another, though at a distance.

T

*Tartar of the Teeth*, that substance which is collected on the outer part of the Teeth, from a neglect of cleaning them.

*Tension*, extension, or the act of stretching.

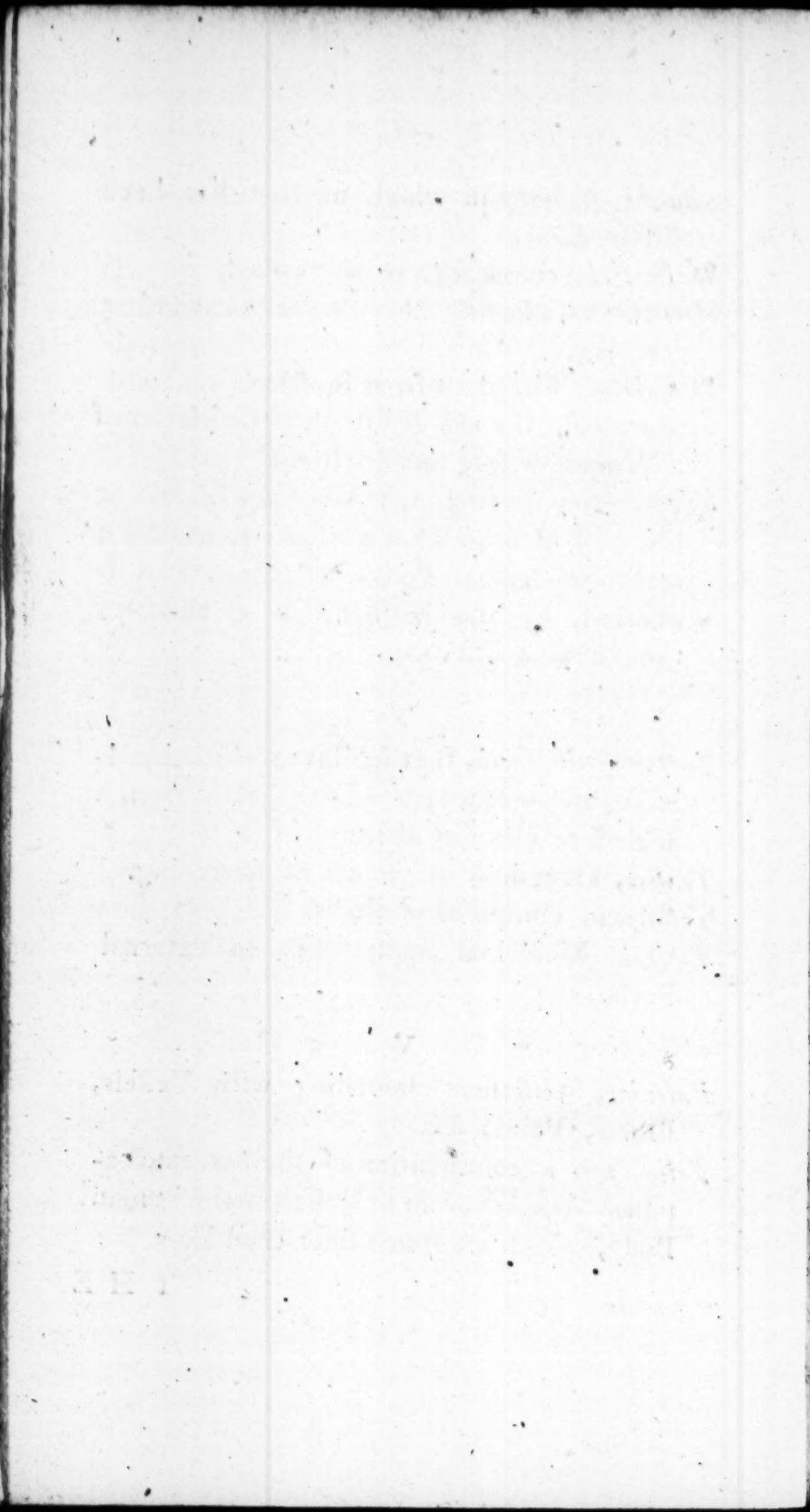
*Tessaceous*, composed of shells.

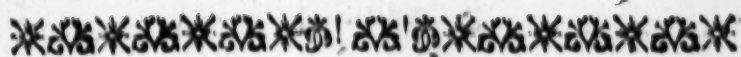
*Topical*, Medicinal applications to external Parts.

V

*Vascular*, Substances abounding with Vessels, Fibres, Veins, &c.

*Veins*, are a continuation of the extreme capillary Arteries or small Vessels in the human Body, which are much finer than Hair.





THE  
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A TREATISE





A  
T R E A T I S E  
ON THE  
T E E T H.

---

P A R T I.

---

C H A P. I.

*The Design of this Treatise.*

**T**O preserve the Teeth, to regulate their growth, and to remove the great variety of disorders and deformities to which they are exposed, are matters of greater importance than is generally imagined; and of such universal concern as justly claim the attention of the Public; for disorders or deficiencies of the Teeth, however

B                      slightly



slightly regarded by some people, are inevitably attended with evils that affect the whole system; and deformities of them are often remarkably hurtful in common life.

Whatever renders mastication painful or imperfect, not only lessens our relish and enjoyment of food, but also prevents that perfect comminution and mixture of it with the salivary liquor, which is necessary for digestion; and creates an endless train of diseases in the stomach and bowels, while the body is deprived of its wonted nourishment.

Disorders of the Teeth also frequently bring on the most excruciating pains and dangerous inflammations, sometimes deep seated abscesses that destroy the neighbouring parts, and affect the whole system by sympathy, or by infecting the blood with corrupted matter; and it is well known, that cutting the Teeth carries off a great number of children, that by a well timed  
and





and judicious assistance might be preserved.

Deformities of the Teeth, as they generally tend to disease, are objects of serious attention; but setting apart a consideration that appears so distant, it is well known that they are often as formidable as disease itself.

In common life, we every day observe, how a slight deformity caricatures every gesture of some worthy people; whilst beauty and elegance soften the foibles of others, and grace the few accomplishments they are possessed of.

The oratory of the pulpit and the bar, and above all the art of pleasing in conversation and social life, are matters of the highest concern to individuals. But in these no one can excel whose loss of Teeth, or rotten livid stumps, and falling lips and hollow cheeks destroy articulation, and the

happy expression of the countenance; whose voice has lost its native tone, and whose laugh, instead of painting joy and merriment, expresses only defect and disease.

A foulness of the Teeth is by some people as little regarded as it is easily removed; but with the fair sex, with the polite and genteel part of the world, it is looked on as a certain mark of a most unbecoming sloth; not only as it disfigures one of the greatest ornaments of the countenance, but on account of the ill smell imparted to the breath by foul decaying Teeth, which is not less disagreeable to the patient himself, than offensive to others with whom he converses.

The *Design* of this short Treatise then is to obviate and remove these evils; to render the art which I profess of more extensive utility; to communicate to the Public the advances I have made in it; and lastly, to rescue it from the indifference and unmerited contempt

tempt with which it has hitherto been treated, by those especially who are pleased to comprehend under the idea of Tooth-drawing or Tooth-scraping all that is necessary to be known or advanced on the subject; and therefore place on an equal footing with the Surgeon-Dentist, the Tooth-drawing Barber and the itinerant Mountebank.

## C H A P. II.

*The Method of this Treatise.*

**F**OR the sake of brevity and precision, I shall divide this little work into three parts.

In the first, the Teeth and the parts with which they are immediately connected, shall be considered and described, in their natural and sound state.

In the second, I shall treat of the Teeth and contiguous parts, in their diseased state; and annexed to each disease, I shall give the methods of cure.

In the last part, I shall treat of all the various means that prevent disorders of the Teeth, and that have been found by long experience conducive to their soundness, regularity, good colour, smoothness, and firmness in the sockets, and to the lasting preservation of them in old age.

This last part, although it shall contain instructions for every age, I must beg leave to address particularly to the ladies who have young children, and to such governesses as are studious to preserve in them what contributes to their being admired in society, and useful in itself.

For in the early periods of life, whilst the Teeth are forcing a passage through the gums, and afterwards when the time of shedding approaches, it rests more with the mother and the nurse to make them good or bad than is generally imagined: Then Nature can be cherished where she is kind, assisted when feeble, and easily directed or restrained when irregular or luxuriant.

C H A P.

## C H A P. III.

*Anatomy and Physiology of the Teeth, and  
Parts adjacent.*

**A** PERFECT knowledge of the structure of the Teeth, and of the parts to which they are immediately connected, is the basis of all rational practice, as well in diseases as in the external deformities of them.

I wish therefore, for the sake of those who practise drawing, cleaning, and other operations on the Teeth, that this necessary instruction could be imparted by writing: But that is impossible; for a regular study of anatomy, under proper professors, ocular demonstrations, and judicious dissections often repeated, are absolutely necessary.

I would have it understood therefore, that I do not attempt to teach the anatomy of the Teeth in this manner; but that I mean only to give such a general



idea of these parts in their natural and sound state, as to enable every person, however slightly conversant in these matters, to comprehend whatever shall be said hereafter concerning the disordered condition of them, and to determine, in some measure, how far the practice which I adopt is rational, or likely to succeed.

The Teeth, in grown people, are small bones of various figures and sizes, fixed immoveably in their sockets, by a species of articulation, by the anatomists, called *Gomphosis*.

That part of them which is sunk in the socket, is called the *Root*; that which is exposed to view, the *Body* or *Crown*; and the circular ridge or line, which limits and distinguishes these two parts is called the *Neck* or *Collar* of the Tooth.

The *Substance* of the Teeth is extremely different from that of other bones,



bones, being denser, whiter and not apparently laminated, nor subject to exfoliation.

The *Body* of the Tooth is crusted over with a very white, smooth polished substance, called *Enamel*, which only extends as far as the collar, whatever some anatomists may have said to the contrary: It differs in many circumstances from the bony part underneath, as shall be more particularly pointed out, and it is so hard as to strike fire with steel like flint: viewed with a microscope, it appears to be composed of short radiated fibres, proceeding perpendicularly to the plain or surface of the part from which they arise, and its thickness seldom exceeds half a line or the twenty-fourth part of an inch.

This enamel is formed before the Tooth appears above the gums; it thickens, hardens, and polishes until the age of twenty or twenty five, and

B 5

afterwards

afterwards is repaired no longer, but gradually wears by continued use.

The *Roots* of the Teeth consist of one uniform substance; they are only covered by a periosteum, or thin membrane, which follows them to the bottom of the sockets, and helps to connect them with the diploe, or spongy ossous substance, which forms the inside of each socket.

The *Collar* of the Tooth all round is firmly connected to the membrane of the gums, which in this place seems to unite with the periosteum above mentioned.

The *Substance* of the *Gums* is compact, elastic, and in some measure resembling the texture of leather: It is fixed to the jaw-bones, by means of their periosteum: It covers the whole alveolar border of both jaws; insinuates itself between the Teeth; encompasses the collar of each, and is firmly connected with it. The gums, therefore,

fore, on the outer and inner sides of the Teeth, are one continued piece, containing as many openings as there are Teeth; and the membrane which covers them seems to be a continuation of that which goes to the lips, cheeks, and tongue.

The Teeth, considering their size, are plentifully supplied with *nerves* and *blood-vessels*, which enter through a small hole at the point of each root, and after passing through a straight channel as far as the crown, are divided and diffused all over the substance of the Tooth: This hole lessens as we advance in years, and at last is totally filled up.

The *Arteries* proceed from the external carotids, the *Veins* return to the jugulars, and the *Nerves* are branches of the fifth pair.

The nerves of the upper and lower gums are branches of the Maxillaris superior and inferior, which come from  
the

the fifth pair: They also receive branches from the portio dura of the auditory nerve, which inosculate with the former in a singular manner, and give rise to certain sympathetic affections related in the second part of this work.

The use of the gums is to support the Teeth, to fill up their interstices, to keep them firm, and to protect their roots from the injuries of external air, of the salivary liquor, and of acrid food.

The *Number* of the Teeth varies in different periods of life, as shall be shewn hereafter; at present, we shall only consider them in their most perfect state.

After the *Dentes Sapientiæ* have appeared, there are sixteen Teeth in each jaw which are divided into three classes; the first including the four anterior Teeth, called *Incisores* or *Cutting Teeth*; the second including the two next, one  
on

on each side, called *Canini*, or *Dog-Teeth*; and the third, including the other ten or five on each side, named *Molares* or *Grinders*.

The incisors of the upper jaw are larger and broader than those of the lower; and of the upper ones, the two in the middle are largest.

The *Roots* of the incisors are long, pointed, and single, the *Bodies* are wedge-like, convex on the outer side, a little concave within, flatted on the sides, and so disposed, that their sharp edges lie all in a line, making one *Uniform Edge*.

The *Dentes Canini*, so called from their prominence and similitude to the Teeth of dogs, and also *Eye-Teeth*, on account of their situation, stand on either side of the incisors.

Their *Bodies* are thicker, more prominent, pointed, and rounder on the outside,



outside, than those of the incisors; and their roots are thicker, longer, and more pointed. Sometimes they are so long as to perforate the bottom of the maxillary sinus.

Of the *Dentes Molares*, or *Grinders*, the two first in each row are small, the two next larger, as are the last also, called the *Wise-teeth*.

Their *Bodies* are generally short, very thick, irregularly cylindrical, or rather with four sides a little rounded, and terminated by a broad end, more or less filled with obtuse points, cut in some measure like so many diamonds; whence the name of crown is most frequently given to the bodies of the Molares, because the resemblance is greater than in the others.

The crowns of the two small Molares are often less than the bodies of the Canini, and seldom have above two points, or three at most.

In



In the two large Molares the crown is of much greater extent, and the points are three, four, and often five in number.

The fifth Grinder, or *Dens Sapientiæ*, has a crown much like the two former, but often more rounded and with fewer points. We sometimes find it even in advanced age wholly hid in its socket.

The *Roots* of the Molares are long, more or less flatted; single in some of them, in others two, three, or four, but rarely five in number. Sometimes all these roots are distinct, sometimes wholly united, and often united only in part. They are generally straight, and more distant from each other at the extremity, than at the neck of the Tooth, because they taper to a point; but in some instances, these points are bent inwards, outwards, and in other directions.

The *Roots* of the *Small Grinders* often appear single, without being so in reality:

reality; for on examining them narrowly, we find they have two roots united, or as it were foldered together. Sometimes, the only distinction that appears, consists in a slight separation at the point.

The *Great Molares* have several roots, in the upper jaw three, or four, but in the lower jaw, only two in general.

The fifth Molaris, or *Dens Sapien-tiæ*, has often only one root, but more commonly two, which are conical and seldom long.—Thence it happens that this tooth is generally lost in old age before any of the other grinders.

It appears then, that the grinding Teeth of the upper jaw have more roots than those of the lower; and in mastication, or when the mouth is shut, the upper row, especially in the fore part, advances beyond and slides over the lower, instead of meeting it. In some people, however, they meet; and

but seldom fail, in that case, to destroy each other, or to be worn down very early in life by their constant rubbing and pressure.

It is perhaps unnecessary to add, that the teeth serve for mastication, for the distinct articulation of sounds, and for ornament.

#### C H A P. IV.

##### *The Formation, Growth, and Shedding of the Teeth.*

**I**N dissecting the alveolar arch of either jaw-bone, in infants newly born, we observe, in each socket, a collection of soft white glairy matter contained in a small membranous sack, pierced on that side which corresponds with the bottom of the socket by a nervous and vascular chord, whose vessels presently divide, and are branched all over the membrane and contained substance.

This

This is the Tooth in *Embryo*, whose future nourishment, growth, and ossification is to be derived from the matter conveyed by these vessels.

The first sprouting of the Teeth through the gums happens sooner or later, according to the health or vigour of the child, and is called the *first Dentition*.

It begins in the second, third, fourth, fifth, or sixth month after birth, is seldom finished before the second or third year, and proceeds pretty nearly in the following order.

Within the first three or six months appears one of the front incisors of the lower jaw; then, after a little time, the other: A few months afterwards the great incisors of the upper jaw come forth, both nearly at the same time: Then come the two lateral incisors of the lower jaw, and the two small ones of the upper, one in some  
little

little time after the other : Then appear the two Canini of both jaws ; and in some months more, or about the second year, the small Molares shoot forth successively : So that at the end of the second year, in general, a child is furnished with ten Teeth in each jaw, which are called *Milk-teeth*.

The *second Dentition* is in the sixth or seventh year, or thereabouts, and produces the first four great Dentes Molares, one at either extremity of both jaws.

The *third Dentition* happens in the tenth, twelfth, fourteenth, or fifteenth year, and furnishes four other great Molares, one close by each of the former.

Finally, about the twentieth year, and in some people long after, comes the *last Dentition*, which gives the four extreme Dentes Molares, called Dentes Sapiientiæ, from their coming after puberty.

It



It is to be observed, however, that this order varies considerably in different people and different constitutions. Instances are recorded of children born with their Teeth already cut; others, particularly those who are ricketty, do not cut their Teeth before the fifteenth month or later; and we every day observe, that the Dentes Sapiientiæ in some people come very late, or never come at all. Some have more than the ordinary number of Teeth in one row, others have the supernumerary ones in a double row, or standing apart without any order, owing to a circumstance which we shall touch on hereafter.

The first twenty Teeth, or *Milk-teeth* mentioned above, generally last till the sixth or seventh year. After that, until the fourteenth or fifteenth year, they fall successively, and are succeeded by others, most commonly without any considerable pain, and almost in the same order which they observed in coming forth at first.

The



The *Shedding* of the Teeth is wisely intended, and brought about in a singular manner. Their extremely hard enamel, and the rigidity of their bony substance, will not admit of distension and free growth, like other parts of the body. After an enlargement of the jaw-bone, the original Teeth are no longer sufficient to fill up the extended alveolar space; they must stand single and unsupported by each other, and leave interstices remarkably hurtful to mastication, to speech, and the symmetry of the countenance: The enamel also is not regenerated when once lost; and that coat, which was given in infancy, would be too slender for the uses of long life.

Nature, therefore, has kindly placed under the Milk-teeth, the stamina of another set, which in due time acquires a greater *Size* and *Solidity* than the former, and by their constant pressure on the roots of the Milk-teeth, rob them of their nourishment and hold,  
and

and finally push them entirely out of the sockets.

Hence, in children of two or three years, we find ten grown Teeth in each jaw, ten stamina under them, and also the stamina of the six Molares that come forth afterwards.

Before I conclude this part, I think it necessary to relate an observation, which, although unsupported by the evidence of any other writer, I am convinced is perfectly true and applicable to good purposes in practice; that is, The Molares of the second dentition, are considerably smaller, than the Milk-Molares to which they have succeeded, notwithstanding the encreased size of the jaw-bones; therefore, what I have said above of the encreased size of the Teeth, applies only to the Incisors and Canini.

PART

## P A R T II.

*Of Diseases of the Teeth and  
Gums.*

**T**O treat minutely of all the diseases of the Teeth, and to follow them through all the varieties and subdivisions that occur in practice, would alone furnish matter for a large volume, and the method would be equally tiresome and unprofitable to the reader. I shall therefore rank them under general heads, placing together all those that agree pretty nearly in their general symptoms and indications of cure.

## C H A P.

## C H A P. I.

*Of the Tooth-Ach.*

OF all the diseases to which the human body is exposed, the Tooth-ach is perhaps the most frequent, and the most commonly mistaken, as to its causes and methods of cure; the disorders that give rise to it are extremely numerous; they are not easily detected or traced; and the people that are generally applied to on this occasion are very ignorant. The taking out the Tooth, which the patient complains of, is their universal cure; without considering, that the pain may be often removed by gentler methods; or, that it may arise from disorders which never fail to be exasperated by such treatment; or, that it may be owing to *Sympathy*, which I have often observed to produce a sensation of exquisite pain in a sound Tooth on one side, whilst

whilst a rotten one on the other was the sole cause. Nay, sometimes a cariated Tooth has produced violent pain in the corresponding one of the opposite jaw.

Indeed, the Tooth-ach cannot be treated with any certainty of success, unless we trace the causes of it and pay close attention to them in the cure: For although in its progress it often becomes a violent disease, producing inflammations, restlessness at night, head-achs, glandular swellings, hysteric fits, delirium, abortions, fevers, and a variety of dangerous diseases; yet, in its rise, it is merely a symptom of disease in the teeth, gums, periosteum, or sockets, the removal of which will remove the Tooth-ach of course.

Whether we consider it as a violent disease, or as a *troublesome Symptom*, we are necessarily involved in the investigation and removal of its causes, as much as in the pursuit of means to alleviate or suppress the pain for the instant:



stant: And hence it happens, that the *Tooth-ach* cannot be treated apart from the *Disorders* that usually produce it, without omitting what should be chiefly insisted on, or without giving rise to endless repetitions, prolixity, and confusion.

We shall therefore, in this place, only enumerate the various disorders that occasion the *Tooth-ach*, leaving the diagnostic and curative part to be more fully considered under each head respectively.

1. A *Tooth-ach* often arises from *De-fluxions* falling on the gums, the neighbouring periosteum, and bone, particularly after catching cold.

2. From obstruction\* or inflammation of the nerves and vascular parts of the *Tooth* itself.

3. From *purulent* or *acrid Matter* generated in any of these parts, in consequence



quence of inflammation, extravasation, or acrimony of the fluids.

4. From *Fungi* Excrescences, and Ulcers of the gums.

5. From a *Recess* of the *Gums* occasioned by scorbutic, venereal, or putrid disorders, whereby the roots of the Teeth are exposed to external air and injury.

6. From the *Tartar* of the Teeth, extending itself along the roots, and injuring the gums.

7. From *Looseness* of one or more Teeth, occasioned by violence, loss of gums, salivation, or putrid disease.

8. From *injudicious Extraction*, whereby the tooth is frequently broken low down, the gums bruised and torn away, the neighbouring Teeth exposed at their roots, the external side of the socket very often considerably injured, and

splinters are raised, which produce lasting pains and inflammation.

9. From sudden alterations of heat and cold.

10. From *Sympathy* with the neighbouring affected parts.

11. From *Collections of Matter* formed in the *Maxillary Sinuses*, and in the cancellated parts of the lower-jaw.

12. From *Caries* or *Exostosis* of the bones which form the sockets.

13. From *Caries* of the Tooth itself

14. From *Loss of Enamel*, whereby the sensible irritable part of the Tooth is exposed.

15. From a *Fracture* of the Tooth.

16. From *Dentition*.

17. And lastly, from the affection, called *Tooth-edge*.

## C H A P. II.

*Of Defluxions falling on the Gums, and the Tooth-ach arising therefrom.*

**T**HE Lensor of the fluids, the Spasmodic affections of the solids, the Tension and Overcharge of the vessels that are observed to take place, in consequence of catching cold, or obstructed perspiration, are apt to generate obstruction and inflammation; and the tender parts that are most exposed to the influence of external air, generally suffer first. Hence heaviness of the head, inflammation of the pituitary membrane, irritation and increased action of its glands, &c. hence also an uncommon tension and repletion of the vessels of the gums, periosteum, Teeth, and neighbouring glands, the increased flow of the saliva, and the sensation of pain on these occasions.

But those who have caught cold, are not the only people that are subject

to this disorder: For the same general causes, that produce extraordinary repletion and irritability in other parts, produce them here also; and it is observable, that women who are not regular, and also women with child, are remarkably subject to a Tooth-ach of this kind, for reasons easily deducible from what has been said above.

This sort of Tooth-ach is distinguished from others, by observing, that some of the general causes which we have just now mentioned have preceeded; that a sense of fulness in the gums, and an uneasiness about the sockets of several Teeth, have been succeeded by an uncommon flow of saliva, and a swelling of the gums, extending itself more or less to the muscles of the cheek and face on the affected side; and lastly, that the pain is not confined so much to one Tooth, as happens in other cases; or if it be, that the Tooth so affected appears perfectly sound.

This

This Tooth-ach is extremely common in the winter season; and the *Barbers* are indebted to it, beyond all others, for the plentiful supply of *beautiful sound* teeth, which it furnishes to *ornament* their windows and signs withal. For the people distracted with pain run to the first Barber Dentist's shop that presents itself; and the Operator instantly applies the *universal cure*, the instrument, without wasting time with observations and questions.

If this absurd practice were only attended with the loss of a sound Tooth, it would not, perhaps, in the opinion of some people, deserve to be considered in a serious light: But that is not all. The extraction of a sound Tooth, whilst the gums and perioosteum are swelled and inflamed, is not performed without tearing and wounding them in such a manner as encreases the evil, renews and exasperates the irritability, disposes the parts to inflammation, and uncovers the roots of the neighbouring Teeth, when they are most susceptible of pain, obstruction, and

C 4

decay:



decay: And hence it appears, that the loss of the neighbouring Teeth, which so constantly follows the extraction of a sound one, in defluxions, is occasioned by the *Operation*, and not by any contagion, or communication of putrid matter, as pretended on these occasions.

The common method also of giving acrid aromatic substances to be chewed, such as ginger, galangal, Florentine orris root, cloves, all-spice, mace, camphire, orange-peel, pepper-mint leaves, carraway-seeds, and many other stimulating applications, in various forms, is often productive of very dangerous consequences, notwithstanding the discharge which they occasion. For it is to be considered, that the liquor of the *Salivary Glands*, and not the contents of the *dilated obstructed vessels*, comes forth on this occasion; and since there is no real direct evacuation of the latter, stimulating medicines applied to the very *Seat of Inflammation*, to the distracted irritable fibres,

fibres, must encrease the repletion, tension, and pain.

The true and rational method of cure is comprehended under four general indications.

1. To lessen the velocity, quantity, and inflammatory disposition of the blood.

2. To relax the affected parts by topical applications, and sometimes by scarifications.

3. To make a revulsion by means of irritation, and by discharge from a neighbouring part.

4. And lastly, to lessen the sensibility of the pained parts by the use of external and internal sedatives.

1. The first indication is answered by bleeding and purging, and frequent repetitions of nitrous draughts.

2. The second, by keeping the mouth constantly moistened with emollient attenuating liquors, such as decoction of marsh-mallows, comfrey, or satirion roots, or of columbine, or quince-seeds, with a little nitre; by applying poultices of bread and milk to the affected cheek externally, and boiled or roasted figs internally; and also by scarification of the gums: But this last should only be practised when the inflammation is very violent, and where the obstruction has lasted so long as to leave no hopes of resolution.

3. The third indication is most effectually answered by the use of blisters applied to the ears and nape of the neck. Some are fond of sternutatories and leeches; but I think they are of very little efficacy.

4. For the last intention, Opium is to be added pretty freely to the above-mentioned emollient liquors, and given in due doses at night to procure rest.

Thus

Thus much it is the duty of a Surgeon Dentist to tell the patient in general terms, to prevent his falling into ignorant or dishonest hands. But for the well-timed and judicious application of such methods, a physician or surgeon should be consulted. For he who wanders beyond the Limits of his profession, is subject to errors that are never forgotten; or, his advice, however judicious, fails of due respect, and always goes unrewarded.

In looking over my notes on this subject, I observe, that defluxions mixed with other diseases of the Teeth and gums are much more frequent than cases of *Simple Defluxion*. But since the limits prescribed to this little work will not admit of many narratives of this kind, I must content myself with offering one case, which I take to be more instructive than any of the rest, on account of the frequency of its return, and the constant similarity and simplicity of its symptoms.

A mar-

A married young woman, about twenty-one years of age, came to me in December 1766, to have a Tooth taken out.—Her face was greatly swelled on the right side, as were also the parotid and submaxillary glands; and she could not, without great pain, open her mouth wide enough to give me an opportunity of examining it perfectly. Her teeth were remarkably white, regular, and sound, but the gums were swelled to a considerable degree, particularly on the affected side, and the saliva flowed into the mouth in much greater quantity than is usual in the natural state.

After having asked her some questions relating to her disorder, I found that she had been attacked with the same complaint three or four times before, and at very distant intervals.

She said it came on with a sense of heaviness and oppression in that part of the fore-head which joins with the nose: Then followed a running at the nose, which



which soon ceased, and was generally succeeded very quickly by an uneasiness of the gums, a general pain of the Teeth on that side, and a flow of limpid spittle. But the face and glands had never swelled to so great a degree as happened in the present case, and therefore she was resolved to have a Tooth drawn, to prevent the danger of any future complaints of the same kind.

Determined by the symptoms and progress of the disorder, and by the soundness of all the Teeth, which I examined with the greatest care, I told her, that the extraction of a Tooth could not give her any relief, that it could not prevent a return, that it would give excruciating pain, and might be attended with very dangerous consequences in the present inflamed state of the parts.

With a good deal of persuasion I prevailed on her to lay on a large blister to the nape of her neck, for she would not submit to the application of it behind the ear. ]

ear. I advised her to get from her apothecary a cooling purge, and to drink plentifully of water-gruel, with a little nitre.

As soon as ever the *Blister* began to run, the pain abated, and in two days the swelling was almost entirely gone. In about ten days afterwards she gave me thanks; and as she never since has called, I presume she has not had any return.

### C H A P. III.

*Of Obstructions and Inflammations of the Nerves, and vascular Parts of the Tooth, and the Tooth-ach arising therefrom.*

THESE disorders of the nerve of the Tooth are not easily discovered; and therefore, in tracing a Tooth-ach of this kind, we are obliged to make use of negative, rather than positive signs.

It is certain, that wherever there are vessels and nerves, *there* obstruction, inflammation,

flammation, and pain may be seated. In very lasting pains of the Teeth then, which can be referred to no other cause, which are not attended with the diagnostic signs that distinguish all the other disorders mentioned in this work, we may justly direct our enquiries to this hidden source, and rather assume a rational probable opinion, than act blindly without any opinion at all.

This species of Tooth-ach is relieved by *counter-impresion* and *sedatives*.——

Acrid masticatores formed chiefly of the substances mentioned in page 32, are often of considerable service; for the irritation which they give to the neighbouring soft parts, often diverts the mind from that of the disordered nerve; and perhaps the discharge occasioned by them, directs the course of the fluids towards the glandular and superficial parts, instead of urging the affected nerve. *Burning* the ear with a hot iron has also been practised, under the notion of *counter-impresion*; and if we can credit authors,

thors, and some modern histories of this kind, with considerable success.

For my own part, I do not approve of such treatment. I know it is not often attended with success; and even where it is, the relief is only for a moment: For it is owing to the terror and agitation of mind naturally connected with the idea of burning, more than to any pretended connection of nerves: And I have, in my own practice, seen people relieved of pain on the appearance of the surgeon, and by the dread of the operation, as often as any man can pretend to have cured by the actual cautery applied in such a manner. I would never advise, therefore, to amuse the patient with such a precarious experiment, whilst more rational and more effectual methods may be used; such as blisters laid on behind the ears, and to the nape of the neck, and sedatives used externally and internally.—If these do not succeed, extraction is the last resource.

With

With respect to the virtues of the *Loadstone*, and of certain *Charms* and *Incantations*, so impudently affirmed by vagrant Mountebanks and Impostors, I hope the intelligent reader will readily join with me in treating them with contempt, and in pitying the poor people who are so easily and grossly imposed on.

When the disordered condition of the nerves of a Tooth has been of long duration, it frequently extends itself along the body of the great nerve into the substance of the diploe, and also to the nerves of the periosteum, which surround the root; and then the slightest motion of the Tooth, or pressure, or touch of a hard body, excites a sensation of pain. In this state the disorder is easily distinguished, and the instrument should not be used until the above-mentioned methods have been fairly and patiently tried. Altho' I have taken a good deal of pains to note down all that has occurred in my practice relative to such pains of the Teeth as are not attended with any *visible* disorder



order of the Teeth or gums, I must own, I am not yet certain, that the cause is such as I have suggested, nor can I presume to say whether the cure, in any instance which has hitherto presented itself, should with most justice be attributed to the masticatories which I recommended, or to chance, or *Nature only*. Therefore I shall not attempt to recite any cases of this kind, until I am better informed.

#### C H A P. IV.

*Of acrid Matter generated in the neighbourhood of the Teeth, and the Tooth-ach arising therefrom.*

**T**HE Gums, Periosteum, and Vessels of the Teeth and sockets, as they are subject to obstruction and inflammation, are necessarily affected sometimes with purulent matter, which by lying long on these parts, or on account of its peculiar acrimony in certain circumstances,

ces, irritates the nerves, affects the roots of the Teeth, and produces lasting pain.

This disease is easily distinguished by the appearance of the purulent matter, by the separation of the gums from the Teeth, which generally attends it, and by the disagreeable smell of the breath, which is often perceptible to the patient himself.

It is cured by making one or more incisions to the very bottom of the cavity in which the matter lodges, and by giving a free passage to it at the most depending part. The wound is to be frequently dressed with stimulating balsamicks, such as balsam copaibæ, or tincture of myrrh, received on a dossil of lint; and when it is almost healed, the mouth is to be washed four or five times a-day with some astringent gargle, such as the decoction of tormentil or bistort root, &c. to brace and strengthen the newly generated gums. If the pain be considerable, solutions of opium and camphor should be

be added to the dressings, as well as to the astringent washes last mentioned.

The Tooth so affected should never be drawn until a surgeon of proper judgment has declared his art ineffectual, because there is always the highest probability of cure without losing it; and without proper care and treatment, the same matter that occasioned the hasty extraction of one Tooth, may continue to affect the neighbouring ones, in the same manner.

Children at the time of the second dentition, are more frequently affected with this disorder than other people; for the growing Teeth sometimes meet such a resistance from the Milk-teeth, which lie over them, as occasions inflammation, which often terminates in suppuration.

Some months ago I was called to see a child of nine years of age, who had been troubled for a fortnight, or three weeks, with what the attendants called a *Tooth-ach*, attended with a swelling of the cheek,

cheek, and some degree of fever. Upon examining his mouth, I found a considerable quantity of matter collected in a sinus, which ran from the external side of the small Molares of the left side, almost down to the angle of the jaw. I opened it immediately with the common *Gum-ream*, the pain soon abated, and with proper dressings I brought it to heal in less than a fortnight: From the same cause it happens sometimes, that the matter makes its way externally, when long neglected, and leaves unsightly scars, which never disappear.

When the imprudent use of mercury has produced violent inflammations and ulcerations of the gums, before the venereal infection has been expelled, the foetid putrid state of the fluids in these parts, joined with the venereal *poison*, renders the matter which ouzes from them so acrid that the slightest sores frequently extend themselves all over the gums, and sometimes go deep into the neighbouring soft parts.

Such

Such cases I have seen attended with very violent pains of the Teeth; but as they belonged more properly to the surgeon, I have rarely interfered in the cure.

But of all disorders, the scurvy is the most destructive to the teeth and gums; for it not only brings on ulcerations of the soft parts, but also attacks the membranous lining of the sockets, destroys the nerves at bottom, and deprives the teeth of nourishment; in consequence of which they become discoloured and loose.

Cases of this kind occur every day; and it is to be observed, that although simple ulcers of the gums may be cured by the treatment above-mentioned, here it will avail nothing: For the pain cannot be removed by curing the external ulcers, whilst the chief source of the disease lies out of reach; nor can any applications to the gums fasten the teeth or remove the pain, whilst corrupted matter surrounds their roots and preys upon the sockets.

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In this case, therefore, it is necessary to take out the loose teeth; and the *Operator* will always find that their roots are evidently covered with the corrupted matter, which rendered the extraction adviseable and necessary.

## C H A P. V.

*Of Fungi Excrecences and Ulcers of the Gums, and the Tooth-ach arising therefrom.*

**A** Tooth-ach arising from Fungi Excrecences and Ulcers of the gums is easily distinguished, as the cause is external and obvious to every person in the least acquainted with surgery, or even the natural state of the parts.

When they take their rise from a general disorder of the system, *that* should be first attended to, and opposed by proper medical treatment; then the excrecences are to be removed by the knife or scissars, and the wound is to be dressed

as

as mentioned in page 43; for oily or emollient applications do not answer for dressings for the gums, as they do for muscular parts, nor can they be retained conveniently in the mouth.

Ulcers of the gums, *where they do not touch the Teeth, or form cavities*, need only be treated with balsamic applications at first, and then with astringents, such as tincture of myrrh, sang. dracon. tormentil, bistort, &c. so soon as they are disposed to heal. The pain felt on these occasions, and which is called Tooth-ach, on account of its being extended to the Teeth by connection of the nerves and membranes, is to be mitigated by opiate and camphorated applications: But if the inflammation and soreness are considerable, emollient gargles, such as decoction of quince-seeds, barley-water, or milk and water, with a few drops of tinct. thebaic. should be constantly kept in the mouth, until the state of the parts admits of the treatment abovementioned.

As

As the *Extraction* of a Tooth on this occasion is rather dangerous, than likely to remove the pain, those who practise in this way should take care always to examine the mouth all round before they apply an instrument; and when there are appearances, such as we have described, they should send the patient to a Surgeon, to whom this case more properly belongs, than to a Dentist.

When excrescences of the gums have been long neglected and suffered to grow to a considerable size, the vessels, which supply them, enlarge proportionally, and the cure is attended with uncommon difficulties.

A gentleman, aged about fifty-six, in a tedious and sickly passage from the East Indies, was troubled during the three last months of the voyage with painful ulcers of the gums in the upper jaw particularly. Soon after his arrival they gave him no more trouble; but after three or four months he found a swelling, which was situated in the gums, near the inter-

D

nal

nal side of the small Molares of the upper jaw, on the right side, to become a little painful, and it enlarged every day. Thinking that this would *come to a head*, (as he termed it) and then disappear of its own accord, like the former ulcers, he neglected it for two or three months longer, by which time it became as large as a walnut, very painful, and affected his speech.—A friend of mine, suspecting that it arose from some fault of the Teeth, for they were all discoloured and dirty, told him to call on me. I advised him to have it immediately cut away even with the surface of the gums, which he readily consented to, and insisted on my doing it. After having prepared an astringent gargle, I performed the operation with the *crooked bistory*. The blood poured forth very quickly, and the astringent liquor, which I advised him to keep in his mouth, did not check it in the least: I was therefore obliged to cut a piece of agaric of the proper size, and to apply it with a thick compress of linen; which the patient held fast on the part for two hours.

We

We then attempted to take it away, because the gentleman could not eat or sleep in this manner, but the blood flowed again in considerable quantities, although not quite so fast as before, and I found it necessary to lay on another piece, not quite so thick as the former, which was continued till it dropt off the day following. For three or four days his mouth was frequently washed with astringent gargles; after which I thought it best to commit it to nature: But in five or six days he returned, and said, the excrescence began to shoot forth again; I found he was right, and notwithstanding the frequent applications of burnt allum and Roman vitriol, six weeks were elapsed before it began to lessen and heal.

Had any matter appeared at the root of this tumour when it was cut away, I should have laid bare the bone and examined it; but the healing of the wound in some time after the excrescence was repeatedly taken down, shewed that the bone was not in fault.



## C H A P. VI.

*Recess of the Gums, Exposure of the Roots of the Teeth, and the Tooth-ach arising therefrom.*

**S**CORBUTIC, venereal, and putrid disorders dispose the fluids to acrimony, and the solids of the whole system to dissolution.

The gums in these cases generally suffer very early, because they are most exposed to violence and injury, and to the external air, which is the most powerful agent in putrefaction; and also, because in venereal cases the medicines generally administered seldom fail to bring on inflammation and ulcers of these parts.

The roots of the Teeth are often exposed without any sensation of pain, especially when the gums have receded slowly, and when the successive portions of the roots so exposed have been gradually

dually withered and dried, and their nerves thereby deprived of their accustomed sensibility. But even then the evil is not the less formidable, because the Teeth are exposed to caries, to catch and retain portions of food in their interstices, to give a stinking breath, to be loosened, and even to be pushed entirely out of their sockets on every slight occasion.

A Tooth-ach arising from this cause, is easily distinguished by looking into the mouth, and by finding that the patient is, or lately has been, troubled with some of the above named disorders. If the exposed roots are become carious, extraction is the only cure; because, the bony substance of the Teeth never exfoliates, nor unites with the gums or periosteum, where it is thus affected; not even although the carious surface should be cleared away by puncture, scraping, or otherwise \*.

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\* Some practitioners are of a contrary opinion; particularly the ingenious Mr. March. Therefore  
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But as this is not often the case, and as the roots of a number of Teeth, in the forepart, are frequently long exposed, without any strong appearance of bad colour or decay, the disease and pain are to be removed in a more effectual and judicious manner.

The treatment is partly medical, partly chirurgical: The former consists in removing the original and general disease of the whole body, by a due course of medicine, and in washing the mouth frequently with antiseptic and astringent liquors, such as infusion of roses, betony, granate-peel, bistort and tormentil-roots, rendered slightly acid, by means of orange, lemon, or sorrel-juice, or vinegar. The chirurgical treatment is more immediate and effectual, and consists in scarifying and pricking the affected gums, and destroying their tender outer skin in such a manner, as to occasion a

I only offer this as the result of my own observation.

fresh

fresh shooting forth and elongation of their substance, and such a solidity as will endure the usual impressions of mastication. When they have lost their connection with the Teeth, or when they do not embrace them closely, cutting a small slip away from the forepart is of considerable service, and the new gum will then adhere to the Tooth, or at least will embrace it more closely. During the time necessary for completing the cure in this manner, opiates, solution of camphor, or a few drops of the nitrous æther, in common spirits, may be used with due caution and in proper form, to mitigate or remove the Tooth-ach.

I say one or other of these may be used; but it is not easy to determine, any other way than by trial, which of them is best in any Tooth-ach: For I have found Opium extremely offensive in some pains of the Teeth, which yielded to *Camphor*, and, *vice versa*, camphor has failed where *Opium* has succeeded,

ceeded, without my being able to determine what is the cause of this variation.

A *Recess* of the gums in scorbutic disorders is very frequent; but it is not often cured, when it has been of long duration, even although the scurvy which gave rise to it be entirely removed; because very few of the people who are thus affected look upon the complaint in the serious light that it deserves, nor have they patience enough to submit to repeated operations, however trifling, or to persevere long in any treatment which does not produce a visible change for the better in a very short time.

But if the patient will follow instructions punctually, and if the general disorder or the system be corrected by proper medicines, I think the Surgeon-dentist will seldom fail of success in cases of this kind.

A tradesman of this town applied to me about six months ago, desiring to have



have his Teeth cleaned; and asked at the same time for some *Tincture for curing the gums*, for his, he said, were going to decay.

I examined his mouth, and found the incisors of both jaws entirely naked to the very extremity of each root. After some discourse, I found he had been for many years troubled with the scurvy, but was lately cured by an eminent physician, who, amongst other things, ordered bathing at Margate. I told him that no tincture could cure him, but that if he would submit to the trouble of having his gums cut five or six times successively, and if he would use such washes as should be directed from time to time, I would do my best endeavours.

He was willing to follow my advice, and I immediately began with removing the tartarous crust which covered his Teeth. I then scarified the gums near the edge in many places, and cut away entirely the weak skin which covered

their extremities, to allow the fibres underneath to shoot forth more freely. After the operation I directed him to wash his mouth five or six times a day with a liquor composed of stimulating balsams, and to return in a few days. By this time his gums began to heal, but were not sensibly elongated; I therefore brushed his Teeth clean again with a proper powder, and repeated the scarification, &c. as before. After this the gums began to extend themselves along the Teeth; but the progress was so slow as to require the fifth or sixth operation, and the constant use of balsamic washes, which I changed occasionally to prevent disgust; and thus at last, after a perseverance of six weeks, the gums were completely restored, and have remained sound ever since, by the assistance of astringent washes and brushing.

A recess of the gums occasioned by Tartar is treated of in the next chapter.

C H A P.

## C H A P. VII.

*Of Tartar of the Teeth, and the Recess of the Gums and Tooth-ach occasioned by Tartarous Concretions long neglected.*

**I**N febrile disorders, and when the salivary liquor is not freely poured forth, as when we sleep, or when the neighbouring muscles are not in action, we observe, that a sort of viscid yellowish substance is formed on the Teeth, which most probably is at first nothing more than the saliva inspissated in different layers, and adhering to the Teeth particularly, because their inelastic immoveable substance gives it an opportunity of lodgment, and does not, like the softer parts, use out a moisture to destroy its consistence and adhesion.

This viscid matter is the bed in which tartarous or earthy particles rest themselves, whether collected from the salivary

linary liquor or from the putrid reliques of food left between the Teeth, or from both : It is soft and yellowish, sometimes of a dark-brown, and disfigures the whiter and smother enamel that lies underneath. When it is long neglected in this state, the daily access of fresh matter, and the continued dissipation of the more fluid parts, render it thicker and harder, and more intimately connect it with the enamel, so as at last to form in a manner one continued substance with it, and sometimes to acquire a solidity equal to stone.

The discolouring of the Teeth and the deformity of them, are not the only evils that attend it; for in its progress it insinuates itself between the Teeth and gums, brings on inflammations and pain, destroys their connexions, generates fungi, ulcers and flabbiness, occasions the gums to recede; and at last, by its constant pressure, brings them to waste and decay: In consequence of this, the Teeth are not well supported, and the  
air

air or acrid food are free to attack them below the enamelled part; whence Tooth-achs, caries, looseness, and foetid breath often take their rise. All these evils are the fruits of sloth and negligence, for they are easily prevented, and, when recent, very speedily cured.

The preventative method shall be treated of hereafter, and the cure varies according to the degree of the complaint. For there are several sorts of Tartar differing remarkably in colour, thickness, hardness, and adhesion, from the soft slough that gathers over night, or in sickly people, to the large and stony substance which often envelopes in one uniform crust all the Teeth of either jaw, together with a considerable part of the gums.

That soft matter that gathers on the Teeth over night, is easily removed, by brushing and washing them frequently, and freeing them carefully at night from



from the scraps of food that are apt to lodge after supper.

A slight discolouring of the enamel is removed by rubbing the Teeth with certain testaceous powders, which are prepared for that purpose, and which do not grind away the enamel like those that are commonly sold under the name of *Tooth Powders*. But these are only to be used till the enamel is cleaned and polished, then to be repeated occasionally at proper intervals, when the daily use of a tooth-brush is not found sufficient to preserve the Teeth from future tarnishing of the same kind, or when it has been neglected.

The *crumbling* or the *hard scaly Tartar* is to be removed by means of particular instruments, which the Surgeon-Dentists use, beginning at the gums, and raising it off in layers from the Teeth; for when the tartarous matter is hard or thick, scraping is tedious and ineffectual: Then, what the instrument has left behind,

hind, or the discolouring matter that still adheres to, and shades the beauty of the enamel, is to be removed by the use of harmless Tooth-powders as mentioned above.

The inflammation of the gums occasioned by Tartar is often very violent, and requires to be treated with emollients, as in page 34. When they are depressed or decayed, their growth and adherence to the neck of the Tooth, is to be encouraged, after the removal of the Tartar, by the methods related at page 54 :—But if the tartarous matter has so far insinuated itself between the Teeth and gums, as to widen the openings which the gums form for the passage of the Teeth, a small piece is to be cut away in the forepart of each; for without this, the gums will not closely embrace the Tooth, which has been made smaller at the collar by the removal of its Tartar.

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The treatment of the wounds after these operations is the same as was delivered at page 43 ; and the pain attending this exposed condition of the Teeth, whilst they are under cure, is palliated and relieved by camphorated opiate, and spirituous washes, and sometimes most effectually by the application of pepper-mint-water, with a few drops of nitrous æther added to it.

Before we conclude this chapter it is necessary to inform the reader, that the enamel in some people is discoloured throughout its whole substance, in which case, the removal of the Tartar will only prevent diseases of the gums, but cannot impart whiteness to the Teeth.

Without being apprized of this some people, who are ill advised, continue the use of Tooth-powders, electuaries, tinctures, and scraping with instruments, long after the Tartar is gone, and even until the *Enamel* itself is quite destroyed. In consequence of which  
they

they are affected with the slightest impressions of heat, cold, sweet-meats, acids, &c, and are very seldom free from the Tooth-ach.

It is remarkable that the generation of Tartar depends as much (if not more) on the constitution of the patient, as on neglect, or rough enamel, or snagged Teeth; for whilst some people, without any care, have their Teeth always smooth and free from Tartar, others have it collected in great quantities; and in a few, the generation of such stony matter is so quick and in such quantities as to exceed the belief of any person who is not particularly conversant in this business.

A gentleman of the Bank, not above twenty-three years of age, applied to me about a year ago, for advice concerning his Teeth, which he said were of a very uncommon kind, and gave him constant pain.

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I found them perfectly buried in Tartar, by which each set was united into one continued piece, without any distinction, to shew the interstices of the Teeth, or their figure or size.—The stony crust projected a great way over the gums on the inner side, as well as the outer, and pressed upon them so hard as to have given rise to the pain which he complained of. Its thickness at the upper surface was not less than half an inch, and the crust that covered the external side of the incisors of the lower jaw was so large as to throw the lip forward considerably.

As the Teeth are easily affected by cold, after the removal of tartarous concretions of the ordinary thickness, and as a great deal of time would be necessary in this gentleman's case, I thought it safest and most convenient to scale away this uncommon quantity of Tartar at proper intervals. I removed the whole in about a fortnight, taking off a little every day, and then with a brush



brush dipped in Tooth-powder, made them perfectly clean and white. But they were naturally very far distant from each other, and the gums were considerably injured and forced away by the constant pressure of the tartarous crust: I therefore scarified them in many places near the edge, and advised the patient to use the Tooth-brush two or three times a day, to keep the Teeth clean, and to encourage the rising and strengthening of the gums. In about ten or twelve days I perceived them so far restored, that I told him nothing more was to be done, except to keep the Teeth clean for the future, and to brush the gums.

In the space of half a year he came to me again, and I found his Teeth covered with a new crust of the former kind, as thick as a crown-piece. This was the more surprising, because he told me he had not neglected to brush his Teeth as I had directed; I therefore thought it necessary, after having removed this second growth, to recommend to him the  
daily

daily use of testaceous Tooth-powders and a harder brush.

This is not the only case of the kind which I have seen; but it is the most remarkable, on account of the age of the patient, and the quick regeneration of the stony matter.

The luxations of the Teeth and other evils occasioned by Tartar shall be considered in the next chapter.

## C H A P. VIII.

*Of Looseness of the Teeth, Change of Position, Protrusion, total Luxation, and the Tooth-ach arising from these Causes.*

**A** Looseness of the Teeth is occasioned by recess of the gums, or tartarous concretions, or violence, or by the withering and decay of the connecting membranes and vessels, as happens in certain disorders, and in old age. It is easily discovered by the touch; and the cure

cure is more or less difficult according to the degree of motion it admits of, and according to the nature of the causes which produce it.

When it is owing to a loss of gums, as in scorbutic, venereal, or putrid disorders, we must have recourse to the same general treatment as is mentioned in page 54: The loose Teeth should be made fast and steady, by connecting them with the neighbouring sound ones, by means of *Gold Wire*, or *silken Ligature*; and care should be taken not to press on them for some time, in mastication, or with the tongue. Astringent washes, and brushing the gums, should be continued long after they are healed; and during the course of the cure, the Tooth-ach which may return from time to time, should be relieved by the use of sedatives, as mentioned before.

A looseness of the Teeth is occasioned by *Tartar*, when it insinuates itself between the Teeth and gums, when it destroys

It roys their connection, extends along the roots, and by pressing on the gums, brings them to decay.

Such a looseness may be easily distinguished by any person who knows what Tartar is, and what evils it may produce; and it is cured by removing the Tartar, by treating the gums as directed in page 54; by fastening the loose Teeth by ligature; and lastly, the pain attending this sort of looseness and exposure of a Tooth is alleviated, or removed, by the sedative applications mentioned above.

When a Tooth is loosened by violence, but not moved out of its socket, ligature alone, and astringent washes to brace the gums, are sufficient for the cure. In this case the pain ceases with the looseness of the Teeth; but if it be violent in the beginning, sedatives must be applied.

When the looseness of a Tooth is owing to a decay of the connecting membranes, it can never be made perfectly fast:

fast: But by scarifying the gums, by the use of astringent gargles, by the help of judicious ligatures, and by avoiding all future violence or strong efforts in chewing with this part, such a Tooth may be preserved tolerably firm and sound for many years.

A change of position of the Teeth happens in various ways, as when they incline inwards, outwards, or to a side; or when they are turned round in their sockets, so that their edges stand across the line of the rest. It is the consequence of looseness, violence, or of the loss of a neighbouring Tooth.

When a Tooth loses its natural position, without departing from the socket, in consequence of preceding looseness, it is to be reduced to order, and then retained steady in its proper place, by means of ligature, for some weeks; the cause of the looseness is to be removed, and the gums are to be braced round it, by means of astringents. The nerve of  
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the Tooth is in this case generally broken off, and the Tooth-ach, which attends it, is owing to the pressure of the point of the root on the lacerated nerve at bottom. It should be pressed on therefore as little as possible; and if the uneasiness continues after it becomes pretty firm in the socket, a little of the top should be filed off, that the opposite Tooth may not bear on it at all.

The same may be said of Teeth that are pushed inward, or outward, or to a side by violence.

The Teeth that change their position, and incline to one side, in consequence of the loss of a neighbouring one, may be brought back, or at least preserved from total luxation, by the interposition of an *Artificial Tooth*, which will support them, and in process of time perfectly restore them to their former situation, provided it be well fitted in.

But

But if it appears, that the inclination of two Teeth towards the cavity, is not likely to be attended with any looseness of them, some people are of opinion, that it is best to let them take their bent, since it helps to fill up the void space, and since the neighbouring ones may also be approached in like manner by the help of ligatures, so as to leave little or no appearance of a lost Tooth after some months: But this is a practice that I do not think by any means adviseable; for the interposition of an artificial one answers the purpose better for use and ornament.

The spongy cancellated texture of the bone, which forms the sockets of the Teeth, and the vascular membrane or periosteum which covers their roots, gives rise to a particular sort of dislocation of the Teeth in certain circumstances.

It appears by experience, that the pressure of the Teeth against each other in mastication, is the chief cause that retains them so long in their places; that

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prevents the spongy bones of the sockets from shooting forth their fibres, and filling up so small a cavity; and that counteracts the tendency which the periosteum, especially near the conical point of the root, must necessarily have to protrude the Teeth, when its vessels are swelled or overcharged, from defluxion, inflammation, or otherwise.

Accordingly, in those that have lost a Tooth, and where the corresponding Tooth of the other jaw is thereby deprived of the usual pressure and resistance, we observe that this last very frequently rises above the common level, and is generally supposed to grow longer, until after some time the patient finds it less firmly fixed in the socket, and then is taught that it has been protruded from its natural bed. When a Tooth has in this manner risen far above the level, and when, by remaining so long, or by some slight injury, it becomes loose, the first care is to keep it fixed and immovable, by means of a ligature, for some weeks,

weeks, and to use astringent gargles very frequently, until it becomes totally firm; then it is to be filed down lower than the level of the rest, to save it from further injury in mastication, and to prevent the pain, which in this case is felt severely whenever the patient chews, on account of the whole pressure of the jaw falling on the prominent Tooth, and forcing its point violently against the distracted or torn nerve at bottom.

When the Tooth is protruded beyond its due bounds, but still remains firm and immoveable, the prominence should be filed down: But if the case is recent, and the protrusion not considerable, an artificial Tooth judiciously fixed in the opposite cavity, that is, in the place of the lost Tooth, gives such a counter-action and pressure in mastication, as prevents its becoming any farther prominent.

I know there are some people that object to the use of artificial Teeth, as a sort of effeminacy and foppery. But if

they are insensible of the disadvantages attending the loss of a Tooth in mastication, speech, and aspect, they ought surely to consider, that since an artificial Tooth prevents the dislocation and loss of an opposite natural one, the practice is rational, and as interesting to a man who dreads deficiency or disease, as it is desirable to those who dread deformity.

By *Luxation* of a Tooth, I mean, when it is raised partially or totally from the bottom of its socket.

*Luxation* is preceded by long neglected looseness of the Teeth, or is occasioned by violence; in either of which cases it is very rarely reduced or cured in this country, because it is not generally known to the people that such things are practicable; wherefore they pick out the Tooth so luxated, and fling it away.

But the Surgeon's art and long experience have taught, that a Tooth which has been partially or totally forced out of its socket, may be restored again to its for-

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mer situation and firmness, and may serve for use and ornament to the latest period of life; provided the following cautions and instructions are duly attended to on the part of the operator, and also on the part of the patient.

With respect to the operator, he is to observe, that in a luxation which happens in consequence of long neglected looseness, or loss of gums, or old age, he is not to be hasty in attempting a reduction, or promising a cure: For a Tooth that has been long loose, has generally a short root, shallow socket, and bad gums; all which prevent its fastening well again: When the gums are lost, also, the reduced Tooth seldom takes hold or is well supported; and in old men the sockets fill up at bottom, and the alveolar border shrinks away, the gums retire, and the Teeth that are once luxated cannot therefore take hold at first, nor receive the necessary support afterwards. In these cases therefore I should

prefer artificial Teeth, before an attempt which promises no certain success.

It is also to be observed, that a reduction is only practicable in the fore Teeth, whose roots are single; or in such of the Molares as consist of strait conical roots, which will easily enter the bed from which they have been forced.

The cases where reduction may be practised with the greatest hopes of success are, when the patient is young, and where, in people of middle age, the gums are sound.

In young people a Tooth that has been luxated, if instantly replaced, and forced quite to the bottom, need only to be secured by a ligature for some weeks; and astringent applications are to be long continued and often repeated to brace the gums.

But when the same accident happens to a grown person, when the Tooth is totally beat out, or when a Surgeon is  
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not at hand to reduce it in the very instant, the swelling of the vessels, and extravasated blood, prevent its sinking so deep as before; and as a prominence above the rest of the Teeth would expose it to future injury and pain, it is found necessary to cut off a little piece of the point of the root; to smooth it well, to fill the hole in which the nerve formerly lodged with lead or gold; then to reduce it carefully, and fasten it to the neighbouring Teeth by a golden wire or silken ligature; and the gums are to be treated as at page 54.

For people advanced in years, a hole should be drilled through the Tooth sideways, close by the edge of the gums, before it is replaced; through which the gold wire or silken ligature should be passed, to secure the Tooth more perfectly.

When the Teeth have stood very close together, it is generally necessary to file that which is to be replaced, on the sides,

that it may more readily enter the vacancy.

In this manner also, such Teeth as have been extracted by the dentist, may sometimes be reduced with success; nor does it imply any error in practice to take out a Tooth, and then to replace it; for a Tooth-ach often arises from a caries and disorder of the nerve; which last must be destroyed before any relief can be obtained. This, in the case before us, can only be effected by extraction: The cariated part is then to be filed away, or, if the Tooth be hollow, it is to be scraped clean, to be prepared as at page 79, then filled with gold, lead, &c. and replaced as soon as possible in the manner related above, after having first cleared away the grumous blood that may have lodged in the socket.

But after all that has been said on this subject, I think it necessary to add, for the sake of undissembled truth, and to prevent the imputation of countenancing  
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the impositions that occur every day, that the success on all these occasions, however sufficient to justify the future trials and practice of honest and judicious people, is by no means equal to the extravagant assertions and promises of certain advertising impostors. In the most favourable circumstances, it is more than an equal chance, that a Tooth once extracted or beat out never will fasten again.

Of all those that I have seen reduced, or that I have reduced myself, the greatest part are so far from adhering firmly, that they can easily be pulled out with the fingers; the patient can very seldom bear to chew with them; and even where reduced Teeth have lasted firm for many years, I am of opinion, that it has been owing to the exactness with which they fitted their sockets, together with the firmness of the gums, and not to any renewed connection with the periosteum or bone of the jaw.



It is also proper to observe, that Teeth so replaced often create intolerable uneasiness, pains, and inflammation: For which reason I do not recommend such methods to be frequently or indiscriminately tried, nor do I often use them in my own practice; although I know there are people who make such business well worth their attention, and to whose care I recommend some patients, who are determined on the trial, even although I refuse to be concerned.

The Tooth-ach which attends luxations is of the inflammatory kind, or is owing to exposure of the nerve; the first sort is to be treated as mentioned at page 33, and 59; the last is relieved by the use of sedatives.

Now if this be admitted as a candid declaration of the truth, and as the language of a man whose interest it is to conceal the imperfections and failures of his art; if a Tooth just extracted, and instantly replaced in the socket, which it  
fits

fits in a manner that no art can equal, fails of taking hold, more frequently than it succeeds, and generally is attended with uneasiness and pain, if not with violent inflammation; what shall we say of those who pretend to supply one man with the Teeth of another; with Teeth which cannot fit properly once in a hundred trials; that must necessarily press on the socket unequally, and therefore occasion inevitable pain and inflammation?

The few instances in which they succeed, surely are not sufficient to counterbalance the hazard; and were those people properly versed in the Dentist's art, they would certainly prefer the healing of the socket, and the use of a well constructed artificial Tooth, or a human Tooth with the root filed off, and formed to fit the void space exactly: For this will occasion none of the evils that attend the former practice, which is not only precarious, ineffectual, and dangerous in general, but also immoderately expensive;

five; for it is not to be supposed, that any young person will sell a handsome sound Tooth, to be torn out of his head, without being extremely well paid for his loss and pain.

In many instances, where this transplanting of Teeth has been thought to have succeeded well, I am strongly of opinion, that a new crown has been grafted to the old root, or the extracted Tooth has been replaced, as related above; and the patient has been made to believe that a new Tooth, extracted from another person for the purpose, is placed and made to adhere in this manner. Instances of both sorts of deception have more than once fallen under my own observation.

C H A P.

## C H A P. IX.

*Of Fractures of the Alveolar Part of the Jaw-Bones, of sharp Splinters, of Portions of the Roots of the Teeth left behind in Extraction, of Bruises and Lacerations of the Gums, and of the Tooth-ach arising from these causes.*

THE dexterity of those gentlemen who brag how they can whip out a Tooth quicker than other men can look at it, would be worthy of imitation, were it not frequently attended with the extraction of Teeth whose disorders might easily be cured; or with the loss of many sound ones, by hasty mistaken application of the instrument; or with one or more of the other evils enumerated at the head of this chapter.

It happens likewise, that the instruments which are most easily applied, and most frequently used by the Tooth-drawers, are also those which act in the most disad-

disadvantageous manner, and whose chief power is exerted in breaking the external side of the socket, and in bruising and tearing the gums, instead of fairly raising the Tooth upwards.

Under these inconveniencies, the sudden exertion of the operator's force to jerk out the Tooth in an instant, acts pretty nearly in the same manner as a smart side-blow of a hammer would do; that is, it knocks out the Tooth, but does not draw it safely.

The itinerant mountebanks, who affect this sort of dexterity still more than the barbers or common Tooth-drawers, are not contented with resting here; for they not only whip out a Tooth *before the patient can look about him*, but they endeavour also to make the people believe, that they do it without an instrument, or by *Conjuration*; and for this purpose they are obliged to use such instruments as are most easily concealed in the hand,



hand, rather than those which are safest for the patient.

To these causes chiefly we may refer the frequent instances of fractures of the socket, and even of large portions of the more solid part of the jaw-bone, together with the various evils enumerated in this chapter.

If the fractured part be considerable, and not torn from its connexion with the gums, it should be replaced immediately, and retained in its proper situation by means of a compress fixed between it and the cheek, after having been dipt in some mild balsamic tincture. If the fractured piece is already torn a good deal from its connexion with the gums, it must be intirely removed, the gums are to be replaced, and the wound dressed as above. But if the fracture is not large, the only care is to remove any splinters that point outwards, or that are likely to offend the healing gums.

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As a Tooth sometimes adheres and grows to the socket, so as to form one continued piece with it, it is necessary to observe, that a fracture, in that case, is not the fault of the operator. When it happens also, that a hidden caries of the jaw-bone, has given rise to a Tooth-ach, and, when close by the affected part, a Tooth is extracted, the operator is not to be blamed if a large piece of a caricated bone comes away: for here the fracture is inevitable, and instead of being hurtful, is the only effectual step towards a compleat cure.

After slight fractures of the edge of the socket, if the operator has neglected to remove the sharp pointed splinters that are raised, the gums grow over them, and being constantly wounded by them, are exposed to inflammation and pain, which never cease until the splinters have been suppurated away, or until the surgeon removes them with his instruments. The pain in this case has often been referred to some fault of the neighbouring Teeth,  
many

many of which have been extracted before the real cause has been found out.

The same errors in the choice of instruments, and in the hasty empirical use of them, are the most frequent causes, that a part of the root is left behind in extraction; and I believe, that with the oblique power of some instruments, and the sudden snap given by the Tooth-drawer, a Tooth would very seldom come out unfractured, were it not for the soft yielding external edge of the socket.

The Tooth-ach arising from a portion of the root left behind, is most effectually and instantly relieved by extracting the stump.

If the patient is unwilling to try this second operation, the pain may be sometimes removed by burning the nerve, or by applying a very small bit of lint dipped in essential oil of cinnamon over the hollow part of the stump; or, by introducing

ducing a bit of paste made of opium, camphor, and essential oil of pepper-mint.

These sedative palliative applications very frequently answer extremely well; and it is on this principle that some people in town make considerable sums of money by curing the Tooth-ach, by means of pretended nostrums or secrets, and that they all can produce many testimonies of their success.

Whether the nerve be destroyed by fire, or acrid liquors, or deprived of its sensation by sedatives, the root loses its connexions with the socket, after a little time is protruded, loosened, and very easily extracted.

Indeed a stump or the root of a Tooth is at all times easily taken out, unless it grows to the jaw-bone, which is a very rare case; and nothing is more erroneous than the popular notion, that stumps are very difficult to be removed, and that  
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digging and punching (as they call it) are absolutely necessary.

Whoever, therefore, assumes an operation of this kind; as his chief excellence, pays a very miserable compliment to his own understanding, and insults the judgment of the people, by offering to them, as a matter of great importance, what scarce requires common sense.

When the gums are caught between the heel of the instrument that is commonly used, and the Tooth that is to be extracted, they are frequently bruised and torn; and in fractures of the jaw-bone, the wounds of the gums are often very large. The socket in either of these cases does not heal so soon as usual, the parts inflame, and sometimes suppurate; the nerve at bottom, and the naked roots of the neighbouring Teeth are exposed to the air and other injuries, at the time when they are most susceptible of irritation, pain, obstruction, and caries.

The



The method of cure consists in replacing the gums, in removing the inflammation, in disposing the part to heal, in preserving it from external air and the reliques of food, in mitigating the pain, and lastly, in the use of astringents; all which have been treated of, and explained in various parts of the preceding chapters.

It is not surprising, that a troublesome hæmorrhage should sometimes follow fractures of the jaw-bone, or deep wounds of its periosteum and gums, or even the simple extraction of a Tooth. For if in any of these cases a few arteries are cut off, close by the surface of the bony canal in which they pass, and to whose circumference they are immoveably connected, they cannot shrink and close to stop the blood like the elastic contractile vessels of the muscular parts, but must continue to pour it forth in a constant undiminished stream; and all the idle compositions, stiptics, and astringents generally applied, can avail nothing, where  
the

the parts are not at liberty to follow such impressions.

An hæmorrhage from simple extraction of a Tooth, is most effectually stopped by filling the socket with lint, agaric, sponge, or cork; then by placing narrow compresses over it, until the whole exceeds the level of the neighbouring Teeth; and lastly, by ordering the patient to approach his jaws, and press the dressings tight into the socket.

An hæmorrhage from wounds of the gums or periosteum is not dangerous or lasting, and only requires stiptic applications, such as alum water, spirits of wine, &c. An hæmorrhage from a small fracture of the jaw-bone I have seen very troublesome and very lasting on some occasions, whilst, in other instances, large fractures have been attended with very little loss of blood, as happened in the following case :

About five years ago, a young woman, aged twenty-three, went to a certain

tain Barber-dentist in this town, to have the last Molaris of the upper jaw on the right side taken out, on account of a violent Tooth-ach which it occasioned. He applied his instrument with great agility, and made a strong effort to extract the Tooth, but to no purpose. Uneasy at the disappointment, he entreated the patient to allow him a second trial, promising that he should certainly succeed with another instrument. She at last consented: He fixed his instrument, and with a sudden exertion of all his strength, he brought away the affected Tooth, together with a piece of the jaw-bone, as big as a walnut, and three neighbouring Molares.

The violent distention of the muscles of the jaw on this occasion brought on immediately a great soreness and inflammation of them, and this, joined to the inflammation arising from the fracture and laceration, extended to the muscles that serve for deglutition, to such a degree,

gree, that in two hours after the operation she could hardly swallow.

But the inflammation and pain were not so dreadful to the patient as the deformity that was likely to ensue. She consulted her friends: I was sent for, in the absence of Mr. Green, and having waited on her immediately, I received the history of this affair in about three hours after it happened, just as I have related it.

After looking at the wound, and examining *the piece* that was broken off, I told her, that nothing could be done, except to encourage the growth of the gums over the fractured bone; and after the healing of the parts, to fill up the void space with an artificial piece, to support the cheek; and prevent the lodgment of food in mastication. Upon this her friends seemed to be greatly disappointed in their expectations: They asked whether there did not remain some possibility of replacing the Teeth? And, indeed,

deed, I believe they sent for me with that hope. I answered, that I thought it impossible in her case, but that it would be well done to consult a Surgeon of eminence on the occasion. They acquiesced however in my opinion, and desired I should attend her.

The violent inflammation of her throat and face made it necessary to order bleeding and purgatives immediately, by means of which, and nitrous draughts, these symptoms were removed in less than three days. The wound I dressed and filled with compresses in the manner related above, under the article of fractures, and the part was healed in about a month; during which time nothing remarkable happened, except the flow of mucus, from the maxillary sinus, during the first ten days, which gave the dressings and the matter of the wound an uncommon appearance.

The young woman after this would not admit of an artificial piece, and she still feels a difficulty in swallowing.

When



When splinters are raised in the extraction of a Tooth, they generally fall away of their own accord, or, by the immediate and constant uneasiness which they occasion, they direct the patient to have them removed by the Surgeon. But sometimes it happens otherwise, and they give no great trouble until the parts happen to be pressed on and wounded by their sharp points, a particular instance of which I have seen, and I think it not unworthy of observation.

A gentleman who had the second Dens Molaris of the upper jaw on the left side extracted by a *Tooth-drawer* in this town about two years ago, happened lately to strike his cheek slightly against a chimney-piece. In some hours after he felt a throbbing pain in the gums, just over the place where the Tooth which had been extracted formerly stood. Next day the pain extended to the neighbouring Teeth, and became violent: In consequence of which he called on me, and desired that I should either take out

F                      a Tooth,

a Tooth, or do whatever else I should judge necessary to remove the pain.—

I found his Teeth perfectly sound; and although the inflammation was not confined to any particular spot, I observed it most considerable and most prominent in the place above-mentioned.—

As the stroke which he received was too slight to occasion such appearances, were the parts not faulty before, I immediately concluded, that some splinters had been formerly raised, which pointing against the gums had wounded them on this occasion: I therefore made a crucial incision to the bone, and having found the splinter, which I before suspected to be there, I cut it away with a proper mouth-fleam; after which the patient complained of pain no longer, and the wound healed without any application.

## C H A P. X.

*Of the Tooth-ach, occasioned by excessive cold Air, and the sudden Alteration of hot and cold Liquors.*

**T**HE Tooth-ach arising from either of these causes is seldom violent or durable in this country, except with delicate women, who live a sedentary recluse life, and with those who injure the enamel by the use of tinctures, electuaries, or powders, or by admitting the use of the file too freely.

Such a Tooth-ach is easily distinguished, because the patient always knows and tells the cause; and it is cured by keeping the mouth filled as long as possible with warm water, or *Spirituuous Peppermint-water*; or, if that is not at hand, with any *Ardent Spirit*.

## C H A P. XI.

*Of the Sympathetic Tooth-ach,*

WHOEVER is acquainted with the pathology of our system, will not be surpris'd, that a rotten or disordered Tooth should produce a violent pain in a sound one on the opposite side, or even in the corresponding one of the opposite jaw. For it is well known that a caries of a Tooth in some people constantly produces a violent aching at the ear; that irritation of the nose, brings particular muscles, which lie very distant, into convulsive action; that an inflammation of the diaphragm produces a pain in the tip of the shoulder; that certain irritations of the stomach bring on a pain in the head; in short, an infinite number of such *Sympathetic affections* occur every day.

This sort of Tooth-ach must necessarily have occasioned the loss of many a sound

found Tooth with the *dextrous* Tooth-drawers, who generally apply the instrument to the Tooth pointed at by the patient, and makes a merit of whipping it out *before he knows where he is*, as they express it. And I am the more confirmed in this opinion, not only by the instances of such mistaken practice, that have fallen under my own observation, but also by two cases, in which, through the obstinacy of the parties, I was forced to draw sound Teeth contrary to my advice and inclination.

If the Operator is not extremely careless and ignorant, a Tooth-ach arising from sympathy is easily distinguished, by observing, that the pained Tooth looks sound and well, at the same time that there is a disordered one some where in the same jaw, or in the corresponding part of the opposite jaw.

The disease of the faulty Tooth is generally caries or hollowness, which is to be treated with filing, burning, clean-



ing, acrid, camphorated, or sedative applications, or filling with lead or gold, as circumstances require.

But if these methods do not avail, and if the pain of the sound Tooth continues, the disordered one must be extracted; for it is remarkable, that the mechanism by which pain is conveyed from a cariated Tooth to a distant sound one, serves also to communicate caries and decay, unless the original cause is removed in due time.

A Tooth-ach that arises from inflammation, or other general disease of the parts immediately contiguous, is treated of under these heads respectively, and does not require particular consideration, because it is not so singular, nor so easily mistaken, as that which we have just now mentioned.

## C H A P. XII.

*Of Matter collected in the Maxillary Sinuses, and sometimes in the cancellated Substance of the lower Jaw, and the Tooth-ach arising therefrom.*

THE bones which compose the *Alveolar Arch* of the upper jaw, form, by their connexion with other bones of the head, certain cavities, called the *Maxillary Sinuses*; these are lined with a vascular and glandular membrane, and they contain a sort of mucus which passes off by the nose.

The membranous lining of these cavities is subject to inflammation, defluxion, or suppuration, like other parts; and the matter so generated, when it is long retained, and becomes acrid, produces erosion of the neighbouring bones, and violent pains, which the patient calls *Tooth-ach*, because the seat of pain is close at the roots of the Teeth.

This Tooth-ach may be distinguished from others by the following signs :

As the matter formed is preceded by inflammation, tension, and pain of the membranous sack, the disease begins with a deep-seated throbbing pain more or less violent in the affected parts. Then after some time a lasting gnawing pain is felt, as it were at the roots of the neighbouring Teeth, attended often with a pain in the orbit of the eye, and in the ear. Those also who have ever experienced the common Tooth-ach, can easily perceive that this is of a very different kind, that it is more constant, and less subject to increase or decrease from any impressions made by cold or heat, or medicines applied in the mouth.

The only method of curing this sort of Tooth-ach, is by drawing a Tooth immediately under the affected part, and then by piercing through the bottom of the socket into the *Sinus* or *Antrum Maxillare*, with a triangular pointed instrument,

ment, so as to give a free vent to the corrupted matter. After this, balsamic, spirituous, and detergent injections are to be thrown in daily, to wash away whatever may remain, and to promote a laudable suppuration for some days, until the cessation of pain and good appearance of the matter shew that *Nature* can do the rest. In the mean time a little lint wetted in any mild balsam should be kept in the socket to prevent the access of external air.

A labouring man of a good constitution and about forty years of age, happened in a quarrel to receive a violent blow on the right side of his upper jaw, close by the nose and mouth. A considerable inflammation, attended with a throbbing pain in this part, a slight fever immediately ensued; and in seven or eight days ulcers were formed between the bone and integuments, and matter began to be collected in the maxillary cavities, producing deep seated gnawing incessant pains. He applied to

F 5                      a surgeon,

a surgeon, but the methods pursued did not at all check the disease; for the purulent sinuses every day gained ground, extending under the gums on all sides, under the muscles that cover the maxillary bone, and into the cavity of the nose; so that the matter would gush out at the right nostril when the cheek was pressed on, and a little of it ouzed away from some small openings in the gums. The gentleman who attended him in this unhappy state recommended him about a year ago to an eminent Surgeon for farther advice.

He immediately discovered the true cause and state of the disorder; he was pleased to send for me, and it was judged necessary to draw one or two of the molares first of all. This was done with so much ease, that I suspected the jaw-bone to be carious; and as a large opening would be necessary for the exfoliation of the bone, and the discharge of the matter from so many various parts, I resolved to draw a third molaris, before



before I made any opening through the bottoms of the sockets into the maxillary sinus. But in the extraction of this Tooth all further trouble was prevented, for a large piece of the alveolar part of the bone came away with it, and a large opening was made into the maxillary cavities, from whence two or three spoonfuls of matter poured down immediately, so foetid that the stench was hardly to be borne.

A vent being thus given to the matter, which lodged between the soft parts and the maxillary bone, as well as to that which was collected in the maxillary sinuses, the drain was so considerable for ten or twelve days that it reduced the patient to the last extremity; for he had been long before emaciated and worn down by a hectic fever, and the little strength that remained was scarcely sufficient for the discharge on this occasion. Yet after all, by the humanity and good care of the gentleman who attended him, and by a treatment similar to what I  
have

have recommended above, he recovered perfectly in the space of two months. Had this patient been well advised at first, the matter would have drained away freely, and the disease could scarce have lasted ten days.

As the maxillary cavities communicate with the nose, and cannot therefore be looked on as having no communication with the air, it is surprising how long purulent matter lodges in them sometimes, without acquiring acrimony enough to destroy the bones.

About two months ago a middle-aged lady, who had tried all the nostrums that are advertised for curing Tooth-achs, called on me for advice concerning a violent pain which she had felt for three or four months past, in a greater or lesser degree, in all the grinders of the upper jaw on the left side. She added at the same time, that she was sure her Teeth were sound, and therefore would not permit any of them to be drawn.

After

After looking into her mouth, and considering her case in all its circumstances, many of which I now omit for the sake of brevity, I was obliged to tell her, that unless she consented to have a Tooth drawn directly, the extraction of two or three might not be sufficient after some time. When I had explained to her the nature of her case, and thus represented the danger of delay, she submitted readily. I drew a first molaris, and with a *Graver* pierced through the bone at the bottom of the socket into the maxillary sinus. A small quantity of matter issued forth; I injected a little tincture of myrrh and aloes with a syringe, then stopped up the socket gently with small soft compresses, which were renewed for three or four days, after which no farther care was necessary.

Hence it appears, that collections of matter in the maxillary sinuses should be removed in due time; and it is in general better to be hasty on this occasion,  
and

and to submit to the loss of a Tooth, rather than by rampering and dalliance to risque the health and life of the patient.

But on the other hand, we should not forget that nature sometimes brings unexpected cures; and our being hastily bent on operations and expeditious means should not make us inattentive to the efforts and appearances that promise a change for the better, without any assistance of art.

I have seen a case, in which, after all the usual symptoms, the matter had passed away by the nose, occasioning a disagreeable smell, and staining the handkerchief: And it is not impossible, but that matter thus collected may sometimes be reassorbed and carried into the circulation.

Collections of matter in the cancellated substance of the lower jaw, happen very rarely from any internal cause, but frequently arise from topical diseases of the

the neighbouring parts, which have been ill treated, or long neglected. In ulcers of the gums, *caries*, and *purulent hollowness of the Teeth*, and such like cases, if the acrid matter is permitted to lodge a long time on the bone or in the socket, erosions, deep cavities, and destruction of the osseous substance must necessarily follow.

The symptoms in this case are similar to the former, and the cure is obvious from what has been said above.

### C H A P. XIII.

*Of a Caries, and Exostosis of the Bones which form the Sockets.*

**T**HE bones which form the jaws are subject to caries and exostosis like those of other parts, and the pains which accompany these disorders, as they are extended to the Teeth, are often complained of under the name of Tooth-ach.

The



The exostosis is easily discovered by any person who knows that a Tooth ach may arise from such a cause ; because the Teeth to which the patient refers the pain are sufficiently found, and the jaw-bone somewhere near at hand discovers to the touch and to the eye a protuberance, which, by over-stretching the periosteum is the cause of pain.

People who are not instructed in the nature and differences of disorders that produce a Tooth-ach, are easily deceived in a case of this kind ; and their error is seldom discovered before the patient has a great number of his Teeth extracted successively, with the groundless hopes of being relieved of pain. But neither extraction, opiates, or external applications can avail. The soft parts that lie over the exostosis must be divided quite to the bone, by a crucial incision ; the exostosis is then to be cut away with the knife, or cautery, or broken with pliers, and the wound to be treated as is commonly

commonly practised by the Surgeons in cases where a bone is exposed.

When an exostosis of the jaw-bone produces pain, which is only felt in the part affected, and is not extended to the Teeth in such a degree as to make the patient call it Tooth-ach, it often happens that the protuberance is taken for a disease of the gum, and it is consequently treated with emollients, &c. *to bring it to a-head*, as they term it; by which means it acquires fresh growth every day, and at last compels the patient to seek better advice, after having been tired with long repeated unsuccessful applications and nostrums.

A case of this kind very lately fell under my care, in which the pain ceased immediately after the incision of the gums and removal of the exostosis, and the part healed in less than six weeks, although the exostosis frequently attempted to rise again during the first three weeks.

A caries

A caries of the jaw-bone occasioned by the lodgment of acrid matter, generated originally in the sockets, or in ulcerated cavities of the gums, has been treated of in the twelfth chapter. Here I mean that sort of caries which seems to begin in the *substance* of the bone, or at least in the periosteum, and destroys these parts, before any aperture or matter can be discovered externally.

This disorder is known by the incessant gnawing, deep-seated pain that attends it, and by the constant inflammation of the soft parts that lie over it, which in process of time brings on lividity and ulceration.

The soft parts are to be divided by a crucial incision, and the bone is to be laid bare in this case as well as in the former. The cariated crust should be pierced in many places quite through, until the instrument meets the sound bone: An exfoliation is then to be promoted, and the wound in due time is to be healed in.

in the manner commonly practised by Surgeons, after which the pain and Tooth-ach cease of course.

From these two cases, and many others mentioned in this little treatise, the reader may easily perceive the absurdity and fallacy of pretending to cure every Tooth-ach by means of *external applications*. He may observe, that we do not fail to recommend them, under the name of *Palliatives*, where they are likely to succeed; but on the other hand, it is evident beyond all contradiction, that by far the greater number of Tooth-achs cannot be relieved by such treatment, and some of them may become dangerous to the health and life of the patient, if *that time* be spent in fruitless tampering with *Nostrums*, which should have been employed in preventing the progress of the original disorder.

These remarks are peculiarly applicable to that kind of caries of the jaw-bone which attends venereal infection  
long

long neglected, and the abuse of mercury; because the pain felt on these occasions is generally referred to the turgid and ulcerated state of the gums and periosteum, and very little enquiry is made to determine when it arises from less frequent and less suspected causes. In consequence of this, palliative and topical applications only are used, and the true source of pain is left undisturbed, until the rottenness and decay are so considerably extended as to destroy the whole alveolar part, and thus to rob the patient of all his Teeth, if not to put a painful period to his life.

A gentleman about forty-five years of age, who is now under the care of an eminent Surgeon, whose friendship I have often experienced, was pleased to send for me some time ago to have advice concerning his Teeth and gums, which he said had been long extremely painful and disordered, in spite of a variety of applications which he had tried under different people.

I found



I found the gums and contiguous periosteum of the lower jaw entirely destroyed, the Teeth discoloured, and surrounded with foetid matter. The upper set was also affected, but not to so great a degree.

The long duration of the disease, the state of the soft parts, the removal of the seat of pain from the Teeth to the solid part of the jaw-bone, and the colour of the naked alveolar part, shewed evidently that this last was cariated.

Determined by these appearances, and by the judicious advice of the gentleman above-mentioned, I applied my instrument to extract the third grinder, which stood in the most-disordered part of the bone. It came away with great ease, and brought with it a large piece of the cariated bone, together with four Teeth which it enclosed. The part is now almost healed, under the care of the Surgeon to whom he is entirely indebted for this cure, but it is to be feared, that  
another

another operation of the same kind will be necessary on the opposite side through the patient's neglect, in permitting the caries to extend itself so far before he called for better advice.

Indeed I believe, that if this case had fallen under proper hands at its first rise, and incision of the gums and puncture of the affected bone, or at the worst, the extraction of one Tooth, would have put an end to the disease, provided the venereal infection had been properly treated at the same time.

#### C H A P. XIV.

*A Caries of the Teeth, and the Tooth-ach arising therefrom.*

**A** Beginning caries, is discovered by spots of a dead white or yellow or brownish hue, accompanied generally with slight fissures and perforations of the enamel; a more advanced stage of it is shewn by a lividity or superficial blackness;

blackness, and the last degree of it, by loss of substance.

Exclusive of the different stages of the disease, it is to be distinguished also by the manner in which it proceeds, and the part of the Tooth which it attacks: For it sometimes destroys the Teeth quickly, with a wet and livid rottenness, and is then called a *wet caries*: At other times it acts more slowly, and the affected part is yellow, dried, and withered; then it is called the *dry caries*.

The former sort affects the Tooth in the middle of its upper surface *most commonly*, and proceeds quickly to the cavity in which the body of the nerve lodges. The other attacks the Teeth laterally, gives less pain, acts more slowly, does not happen so often, and is more easily checked in its progress,

The molares, on account of their grinding on each other in mastication, lose the enamel of their upper surface,  
before

before any of the other Teeth; and therefore are much more frequently affected with that sort of caries which perforates the Teeth perpendicularly, exposes the nerve and vessels, gives rise sometimes to fungous excrescences of them, which some people have mistaken for worms of the Teeth, and occasions that constant ouzing of foetid matter from the exposed vessels which distinguishes the *wet caries*. It is remarkable, that the upper molares are more frequently cariated than the lower, and the *Dentes Sapientiae* in general suffer sooner than any of the other grinding Teeth.

Fissures, perforations, and white or yellow spots of the enamel, should not be meddled with; for Teeth are very often seen to last in such a state for many years, without any of the inconveniencies which attend the total exposure of the bony substance when the enamel is filed away: But when it happens that this affection of the enamel makes hasty strides towards lividity and true caries,  
then

then it is to be treated as hereafter shall be directed.

A superficial or dry caries, if it does not appear to advance very quickly, should not be meddled with, because it cannot be removed without destroying the enamel, and because such a cure is often productive of greater evils than the disease itself: For it exposes the bony part of the Tooth, and gives rise to pain and new disorders on every slight occasion; whilst the superficial caries, if left to itself, might remain without increase or inconvenience for many years, as we frequently observe.

Sometimes, however, it proceeds quickly to destroy the substance of the Tooth, and must be filed away totally. Then the bony surface that is exposed by the operation is to be covered with a bit of lint dipt in a stimulating balsam, or if this cannot be conveniently applied, with a bit of gum Tacamahaca,

G                      gum



gum juniper, ambergris, or of gum mastich properly fastened in.

At other times it attacks the whole crown of the Tooth on all sides, particularly when the enamel is worn or filed off; and although it does not waste the Tooth very fast, it renders it incapable of bearing the slightest pressure or cold.

Acrid, aromatic, camphorated, and sedative applications remove *for the instant* the pain that is felt occasionally; but if it should return often and violently, and if the extreme sensibility of the affected Teeth prevents the patient constantly from chewing on that side, extraction is by all means adviseable, else the neighbouring Teeth will become tartarous and protruded for want of use.

When the *wet* or *livid caries* attacks the upper surface of a Tooth, it should be immediately removed by proper instruments: If it has already made its way into the cavity, in which the body  
of

of the nerve and the vessels lodge, and occasions violent pain, the nerve should be destroyed, by applying the *hot iron* which is made for this purpose: A little lint dipt in *Oil of Cinnamon* should then be placed in the cavity for two or three days, to shrivel such part of the nerve at bottom as might have escaped the iron, and to correct the putrefactive liquor; after which, the burnt and cariated parts are to be cleared away, the hole is to be widened a little *if necessary*, and then filled with gold or lead, &c.

For those who dread the actual cautery, and will not submit to it, a drop of spirit of vitriol or nitre may be caught on the end of a probe, and introduced carefully into the cavity: A drop of soap-lees, or a bit of lunar, or common dry caustic, will answer the same purpose; but none of them so well as the actual cautery; because their action cannot be so easily or so immediately directed, nor can the saliva be prevented from blunting their corrosive quality.

quality. When the pain is already violent, and when the actual cautery cannot be used, oil of cinnamon or of cloves applied in the cavity, shrivels and destroys the nerves more gently and slowly than caustic applications, and after some days suppresses its sensibility so far as to admit the use of instruments, to widen the cavity, to clear away the cariated parts, and to fill it with gold or lead, to prevent the future access of air, the lodgment of food, and the farther progress of the disease.

Where-ever gold or lead cannot be borne in this manner, some of the tough resinous substances mentioned above should be used, until the parts are less sensible, or better accustomed to such a sensation; and it is in general to be observed, that the gold, lead or gum should not project beyond the *common level*.

When the caries has been neglected, until the bony substance of the crown is almost destroyed, the remaining enamelled

melled shell is to be filed down, even with the gums; and the *crown* of a human Tooth of proper *shape* and *size* may be artfully fitted over the natural stump, and screwed to it, in a manner to be as solid and useful as any of the other Teeth.

This is a method that can be attended with no manner of inconvenience, provided it be properly executed, in the manner practised by the *ingenious* Mr. March, provided the nerve be destroyed, that the screw do not enter too deep into the root, and that the root itself be not already loosened. Therefore, I always practise it, and prefer it to the extraction of the stump, and the precarious transplanting of another Tooth, whenever the patient is willing to go to the price which a judicious execution of it deserves.

I observe, that some people, endeavouring to imitate this method, use a rivit instead of a screw, and make the

G 3. patient

patient believe, that they have instantly given him a beautiful and well-fastened Tooth, whilst they have only fitted a new crown to the former stump. But the rivit is not eligible, because it does not hold so well.

When it happens that the nerve cannot be perfectly destroyed, and the screw cannot be borne without pain; the crown that is to be fitted in is to be drilled through laterally almost even with the gums, and after being properly placed, is to be held fast by means of ligatures, which are to be passed through these holes, and fixed to the neighbouring Teeth.

A caries sometimes affects the Teeth, and produces the Tooth-ach in a manner that cannot easily be discovered: That is, it begins in the lateral part of a Tooth, where it is perfectly hid and covered by the neighbouring one.

This



This sort of caries often proceeds quickly, and considerably injures the Teeth before it appears externally; therefore it should be carefully looked into, and obviated in due time by filing open the suspected part, and by removing intirely the infected crust. For although it is advisable to be very sparing and cautious in the use of the *file* in every other instance, this case particularly requires it, without loss of time; that the putrid and contagious matter may have no place to rest in, that it may not affect the neighbouring Teeth, and that there may be room for the brush or Tooth-pick to enter and clear away the reliques of food, which considerably promote the carious infection.

As a caries may easily be communicated from one Tooth to another, and often makes considerable advances without occasioning any pain, those who are nice in the preservation of their Teeth, should have them examined three or four times a year at least; because in that

case, the Surgeon-dentist may nip such evils in their rise, or he may judge more accurately of the nature and due treatment of each.

Where it happens that a patient is led away with the opinion that the Tooth-ach attending caries may be cured by external applications, as advertised by many in this town; and when he will not submit to the rational and effectual methods treated of above, we must be content with the application of sedative an camphorated pastes or tinctures to the cariated part, or with the use of oil of cinnamon or of cloves, or of spirits of turpentine, or any aromatic acrid liquor, to destroy the sensation of the nerve for the instant. Finally, where the caries has extended too far into the substance of the root, where matter is generated and likely to be retained in such cavities, where a new crown cannot be fitted, and where the pain continues even after the nerve is burnt, *extraction* is the last resource.

C H A P.

## C H A P. XV.

*Of the loss of Enamel, and the Tooth-ach  
arising from thence.*

**A** LOSS of enamel is easily detected by the eye, and is occasioned sometimes by internal disorders, sometimes by acid fruits and sweetmeats, often by long wearing, but most frequently in this town by filing, and the repeated use of certain Tooth-powders, electuaries, and acid tinctures sold for cleaning the Teeth.

Whatever the cause be, the enamel once lost, as we mentioned before, never is restored, and all that can be done for the Tooth-ach, arising from such an exposure of the naked nervous bony substance of the Teeth, is to use palliatives, or apply the instrument at once. For the former intention, camphorated æthe-

real and sedative applications, if properly chosen, may be used as a temporary relief with success: At the same time also, the use of such cutting powders and corrosive tinctures must be wholly rejected, and extremes of heat or cold, and sweetmeats, and acid liquors avoided carefully, for reasons which shall be treated of at large in the third part of this work.

## C H A P. XVI.

*Of Fractures of the Teeth, and the Tooth-ach arising from thence.*

**A**S the fracture of a Tooth is occasioned by some violence, and attended with a loss of substance, it is easy to know when a Tooth-ach arises from that cause.

The treatment depends on the extent, the direction, and figure of the fracture, on the symptoms that attend it, and on the choice and circumstances of the patient.

If

If the portion of the Tooth that is broken off be small, acrid oils, sedatives, and camphorated applications, remove the sensibility of the exposed bony substance, and mitigate the pain, until custom, or the withering of the nerves that lie near the surface, renders the ordinary impressions of air, cold, and heat tolerable to the patient: It is also adviseable to cover the part for some time with some of the resinous substances mentioned before.

If the fracture be oblique, leaving sharp prominent edges which are likely to wound the lips or tongue, they are to be filed off.

When the whole or the greatest part of the crown is broken off, the nerve is to be destroyed, and a new crown fixed on, as related at page 124: If the patient does not chuse the expence and trouble of this method, and if he feels no pain or uneasiness from the stump, it may be safely permitted to drop out of  
its



its own accord. But if the pain continues, or is apt to be renewed on every slight occasion, extraction is the only cure, and it should not be deferred too long; for the consequences of such delay are sometimes very alarming, and render this necessary operation impracticable without the loss of a neighbouring sound Tooth.

A young lady troubled with a violent Tooth-ach sent for a Tooth-drawer about half a year ago, and desired to have the last Tooth of the upper jaw on the right side taken out, for the pain was seated there particularly.—He immediately applied the instrument, and, as she then believed, extracted the Tooth entire. But still the pain continued, and was encreased to a most violent degree, by the slightest impressions of cold air or food.

In about a month after the operation the bad effects of catching cold were added to the former complaint; the pain  
encreased

encreased, the gums swelled, a violent inflammation seized on the muscles of the face and neck on the affected side, and the submaxillary glands became hard, painful, and greatly enlarged.—These symptoms continued without abatement for some days, and then produced a collection of matter in the affected glands.—A Surgeon was sent for; he traced out the force of the disorder, and knowing that a cure could scarcely be obtained without the removal of the stump, which he judged to be still remaining, he was pleased to send for me. In the mean time he did not neglect to make an opening low down in the neck, to drain away the matter which was collected to a considerable quantity in the above-mentioned glands and muscles.—When I waited on the lady, the inflammation, which had long affected the muscles of the cheek and jaw, was not yet considerably abated, the mouth could not be opened wide enough to admit my finger, or to allow a proper view of the parts, and I was obliged to content

tent myself with examining by the help of a reflected *Tooth probe*, by which I satisfied myself that a stump left behind in the operation performed by the drawer, was the sole cause of all these symptoms, agreeable to the opinion of the Surgeon: It was necessary therefore to extract it at all events.—As the jaws could not be opened wide enough to admit the instrument in a proper direction, and as it was impossible to extract the stump without removing the neighbouring Tooth which stood in the way, I took out both before I withdrew my hand.—About a fortnight after this I called to see the patient again, and found that the inflammation had subsided soon after the operation, and the disordered gland was in a condition to heal; but she told me that a violent erysipelas seized on her whole face, and endangered her life, in some days after the operation.

## C H A P. XVII.

*Of the Tooth-ach and other Disorders, arising from the Last Dentition.*

**T**O avoid repetition, I find it most convenient to refer the treatment of disorders arising from dentition in young children, to the third part of this work: I shall therefore only consider the last dentition in this place.

The dentes sapientiæ, on account of their great size and broadness at the extremity, and on account of the thickness and solidity of the gums at the time of puberty, are not protruded, without a considerable elevation and tension of these parts. It happens also, that the dens sapientiæ of one jaw often grows to the level of the neighbouring Teeth, long before the corresponding opposite Wise-Tooth has made its passage through the gum; wherefore the gums must necessarily be bruised and wounded, as often as the patient attempts to chew; and  
this

this concurring with the circumstances related above, produces violent and sometimes wide extended inflammations of the gums and muscles of the face, and Tooth-ach, and not unfrequently abscesses which break externally.

Nothing is more easily distinguished than this disorder, because it happens at a certain age, and seldom comes on without the patient's being well convinced by gradual advances that a new Tooth is the cause.

If the Tooth is almost protruded, if the gums are considerably raised, and the inflammation not very violent or extended, the pain may be presently removed by cutting the gum quite down to the Tooth, with a *large crucial* incision, to prevent a speedy re-union. But when the tumour is very large, when the inflammation has extended itself to the cheek and face, and muscles that close the jaws, so as to prevent their being opened wide, bleeding, purging, and



and emollient cataplasms must be used, and the mouth washed with attenuating liquors, until it can be opened sufficiently to admit the instrument, and until the parts have returned to their *natural situation*. Then a crucial incision should be made large and deep enough, with the bistory or fleam, to give the Tooth a free passage. I say the parts should be brought to their natural situation previous to this operation, because inflammation affects the soft muscles of the cheeks, and those that close the jaws, more considerably than the gums, and throws them out of their natural place, so far that I have known a patient to have received a considerable cut in the cheek, close by the Teeth, which was intended for the affected gums. The division of the gums also should be deep and compleat, otherwise they are apt to re-unite; or, the slender slips that may have escaped the knife, and that lie over the Tooth, suffering now a greater tension than before, are found to continue the pain and inflammation for a considerable time.

C H A P.

## C H A P. XVIII.

*Of the Disorder which we express by saying the Teeth are of an Edge.*

**A**LTHOUGH our language does not furnish a *proper* name for this affection of the Teeth, it is well known, and very frequent, especially among children, who are fond of eating vast quantities of acid or acerb fruits.

It also is observed to proceed from certain internal diseases, from hysteric affections, from bilious and putrid diseases, and long continued salivation: But the most troublesome and lasting kind of it, is owing to a loss of enamel.

This painful affection is chiefly felt when we attempt to chew; and unless we admit that the solid substance of the Teeth is extremely sensible of certain sorts of stimuli, whilst it is insensible of other impressions that appear equally strong, it is very hard to explain how the sensation is brought about. To refer

fer it to the gums explains nothing, for certain sounds have the same effect, and the disorder, when it arises from internal causes, may often be alleviated by rubbing the tops of the Teeth with a dry towel; and the Tooth-edge of children is removed by applying sorrel-leaves in the same manner; which although acid and acerb, remove the disorder left by acid and acerb apples, currants, gooseberries, or other fruits.

That sort of Tooth-edge which arises from internal disorders, ceases with the general cause that produced it, and is therefore intirely the object of medical practice. That which arises from the use of acids and acerb fruits is to be cured by chewing sorrel-leaves: And that which is owing to loss of enamel, particularly in cold weather, is relieved by keeping warm water in the mouth for some time, or by applying spirituous and acrid things, and by protecting the Teeth from the impressions of air, cold, and saccharine, or acrid food.

C H A P.

## C H A P. XIX.

*Of the intermitting or aguish Tooth-ach.*

**I**T happens frequently that a Tooth-ach returns at stated intervals, and has the same remissions as are observable in intermittent fevers.

The very idea of intermission and that of giving Peruvian bark, are so intimately connected in modern practice, that I have an hundred times seen an intermit- tent Tooth-ach treated with this medicine for several months, which has afterwards been cured in three minutes by the extraction of a cariated Tooth.

I will not presume to say, that an inter- mittent fever has never shewn itself under this form, independent of any topical disorders of the pained Teeth; nor will I pretend to explain, why the ach- ing of a carious Tooth should cease and return at stated intervals. But I can safely

ly affirm, that I never heard of a lasting intermittent Tooth-ach cured by the bark, nor have I seen one instance where the pain could not be referred to some more probable and demonstrable cause, than that to which it is generally attributed; and I have cured numbers, in whom the bark had failed, by extracting a cariated Tooth, sometimes in the seat of pain, at other times in the opposite jaw, or at a considerable distance in the same jaw. Nor do I think that an intermission, and regular approach of pain, at stated intervals, is a singular appearance or probable indication of that species of fever which is cured by bark: For in the human system nature universally affects stated periods of operation, and seems to be led remarkably by habit. Thus we grow hungry and sleepy at stated hours: epilepsies and madness, and some hysteric fits return regularly: Thus the asthma, whooping cough, and hectic fever are most violent at stated hours: Thus wounds give most pain, and disorders in general grow worse towards  
the



the evening; then why may not the pain of a carious Tooth observe some order in its recess and return?

The most frequent cause of deception in this case has been, that the Teeth in the pained part have been found perfectly free from every appearance of topical disease; and the observer, not knowing that a cariated Tooth at a distance may produce such symptoms, never searches farther, but resolves that the intermittent Tooth-ach *shall* be treated like the intermittent fever.

A lady about thirty years of age, in the winter of the year 1766, was seized with a pain in the Teeth of the lower jaw, which extended equally over the whole set, but was not accompanied with any remarkable degree of inflammation. She sent for her Apothecary, related her complaint, and added that she had reason to suspect a cold had been the cause of it. Resting too much upon this, he took it to be a defluxion, or a *humour falling*

*falling on the gums.* Accordingly he ordered purges and cooling medicines, and laid on blisters behind the ears. This treatment was continued upwards of ten days to no effect; except that the pain now became intermittent, departing in the day-time, but returning at night with double violence, and thereby depriving her of rest. Having remarked this change, he agreed with the patient in suspecting that he had mistaken the case at first; and now that the disorder began to shew itself under its proper type, there remained no doubt with him of its being speedily cured by the *bark*. The *bark* was given in various forms for upwards of a month, the pain continued, and the patient would take no more medicine, but resolved to send for me.

It was some time before I could discover any thing in her Teeth or gums, to which a pain so lasting and obstinate could easily be referred. Observing however that the Teeth were dirty, and in many places had their interstices quite filled

filled up with slough, for want of being used, for the patient could not chew hard food ever since the beginning of the complaint, I thought it necessary to clean them well, and to examine more narrowly before I should confess my ignorance of the cause of her complaints. When I came to clean the last molaris on the right side, the instrument caught in a small cariated interstice close by the next Tooth on the outside, and then I plainly saw the source of all that I have related above.

Having told the patient what I thought on the occasion, she was eager to have the cariated Tooth taken out immediately. I complied; the pain ceased in a few minutes after the operation, and never returned since that time.

Altho' cases of the intermittent Tooth-ach occur every day, this furnishes more ground for observation than any other that ever has fallen under my care; for it is very unaccountable how a whole set of Teeth could be so long affected by so  
slight

slight a cause, whilst a wide extended caries is often seen to produce no pain at all. The similarity also between this case and the continued fevers that become intermittent is remarkable, especially as it arose from a treatment which is apt to have a like effect in febrile cases. The constant return of the pain at night particularly is pretty singular: And the difficulty which I found in discovering the seat of the disorder, should teach those who are applied to in cases of this kind, that no man can detect a slight caries of the side of a Tooth, unless the parts are perfectly clean, unless he uses proper instruments for the purpose, and unless his manner of examining is better than what is usually practised. For most people content themselves with looking at the upper surface of the Teeth, and never consider what may lie hid on either side under the slough, which constantly attends such disorders of them as prevent mastication.

## - C H A P. XX.

*Of Soreness, Softness, and Bleeding of  
the Gums, of Worms of the Teeth, of  
Stinking Breath, and Lost Palate.*

**S**Oreness, sponginess, and bleeding of the gums, generally arise from scurvy, venereal infection, or putrid fevers, and are cured by general treatment of the original disease, by the frequent application of astringents and antiseptics, and by scarifications, when it is necessary to give vent to the over-charged vessels, or acrid matter.

The use of the brush in cases of this kind is condemned by some theoretical reasoners; but experience shews, that nothing conduces to the restoration and solidity of the gums more than frequent brushing and cleaning.

Worms of the Teeth, although talked of by some authors, are not to be seen in practice;



practice; but the fungous excrescences which rise out of the cavities of cariated Teeth, and which are taken for worms even at this day, occur frequently, and are to be treated with the cautery.

A stinking breath attends external foulness of the Teeth, caries and purulent cavities of them, scorbutic or ulcerated gums, and the long lodgment of little scraps of aliment in the interstices, occasioned by the recess of the gums, the use of hard Tooth-picks, and a bad arrangement of the Teeth. The methods of cure can easily be deduced from what is said on each of these heads respectively.

Disorders of the Teeth, as well as other more general ones of the whole system, sometimes bring on a caries of the palate bones; in consequence of which, the food in chewing is apt to pass into the nose, and the speech becomes disagreeable. When these thin bones are once lost they never are regenerated, and an artificial palate is the only remedy.

This is artfully contrived, and fitted in various ways, agreeable to the extent, situation, and other circumstances of the diseased aperture. But as I have all along avoided the description of instruments, devices, and operations, I shall not at present enter into any detail of *this* contrivance.

Before we finish this little sketch of the treatment of disorders to which the Teeth and neighbouring parts are exposed, it is necessary to remark, that for the sake of being easily understood, I have all along described and considered them in their most simple state, without representing the various combinations and complications of them that occur in practice, and the equivocancy of the diagnostic signs, which I have affixed to each sort when two or three diseases uniting confuse the common order, and so produce new varieties.

The reader therefore will please to observe, that the regular appearance which  
we

we have given to the disorders treated of above, is not meant to bestow on the subject a greater air of certainty than it deserves, nor to make him believe that he shall find things precisely as we represent them in every instance, or that he shall meet with no cases besides those we have treated of. It is intended only to assist him in thinking and reasoning methodically, to furnish him with matter and practical discoveries, and with a line that is to guide him through the irregularities, intricacies and doubts that occur in practice.

## P A R T III.

## C H A P. I.

*The Care and Treatment of the Teeth and Gums, to prevent Diseases and Deformities of them, and to restore and preserve their Beauty.*

*Preliminary Discourse.*

**B**EFORE I attempt to teach how diseases and deformities of the Teeth are to be prevented; before I venture to oppose the unfair and dangerous practices which prevail at this time, or to explain how the trouble and expence which are usually bestowed in preserving the beauty of the Teeth, may be more  
advan-

advantageously and judiciously applied; and reduced within such bounds as will better suit the convenience of the people; I must beg leave to throw myself on the candour and justice of the public, and to intreat that my endeavours may be received with *indulgence*, as I have offered them with *good intent*. For I am not insensible of the jealousies and animosities to which a man is exposed, who reduces to order, and fairly teaches an art, that has been as obscure as its professors, and branched by crafty and *illiberal* men into various pretended mysteries; and in attempting to prevent the impositions by which a few interested individuals acquire considerable sums of money, I must expect to be followed with the enmity and malice of their party, as much as if I had subverted some useful branch of trade.

But I hope the candid and discerning part of my readers will observe, that a man who undertakes a work of this kind, is bound in justice to tell what is



hurtful, as well as what is serviceable ; *they* will consider that *he* does not act on selfish principles only, who teaches how people may obviate a number of those evils which are the chief sources of his own profit ; who opposes fruitless expence, extortion, and deceit ; who affects no secrets or peculiar excellence, nor obtrudes upon the credulous any specific compositions or nostrums : And finally, who endeavours to make his art appear the fit study of judicious men, and not the trade of mountebanks, valets de chambre, and nostrum-mongers : Wishing by his example to encourage others to communicate the improvements that may be made from time to time, in the same candid liberal manner as is observed by Physicians and Surgeons of repute.

As the health and beauty of the Teeth depend in a great measure on the care and treatment of them in early life, we shall begin this part with the first dentition, then we shall treat of the second,  
and

and afterwards successively of the irregularities of the Teeth.

Of the reduction of them by ligature.

Of the use and abuse of filing.

Of the methods of preserving the whiteness and polish of the Teeth.

Of acids, sweets, violent efforts, picking the Teeth, smocking, &c.

Of the care of the Teeth in advanced age. And,

Of artificial sets of Teeth.

## C H A P. II.

*Of the First Dentition.*

**F**ROM the third month to the second year the protrusion of the Teeth cannot fail to be attended with some degree of uneasiness, pain, and inflammation of the gums, on account of the continued state of tension in which they are kept, and the unremitted irritation occasioned by the sharp edges underneath.

If during this time any general febrile disorders should concur, or any other cause that is apt to increase the inflammation of these parts, and the irritability of the nervous system, the inflammation is turned to ulcers, or extends itself to the muscles of the face, to the salivary glands, and other parts, producing abscesses and a variety of disorders. Hence slavering, restlessness, head-achs, pains in the ears, parotids, inflammatory and- hectic fevers, rickets, convulsions, vomiting,

vomiting, purging, and even the death of almost one half of the children that are lost before the second year\*.

But without departing from our present purpose, it is constantly observed, that dentition causes inflammation, and inflammation, if violent and neglected, causes ulcers and abscesses, and these not only can injure the growing Teeth, but also the tender stamina that lie beneath to supply a second dentition.

Hence it appears, that a treatment of the first dentition at once concerns the health and life of the child, and the soundness and beauty of all the Teeth that he has already grown, or that he ever is to have afterwards; and nothing can be more short-sighted and erroneous, than the notion that the first Teeth re-

\*Those who judge of the fatality of disorders by the bills of mortality, will imagine perhaps that this computation is greatly over-stretched. But it is to be observed, that the deaths imputed to convulsive disorders are to be taken into this account, because they almost universally arise from dentition at this time of life.

quire

quire no care, because they only last to the seventh year.

It is highly necessary, therefore, to watch carefully each successive protrusion of the Milk-teeth, to mitigate the inflammation, to alleviate the pain, and to remove every impediment.

For these purposes, the body should be kept open with gentle purges when necessary, mild opiates should be given at night when the pain occasions restlessness, and above all, the gums should be divided in the part that is most prominent and raised by the pressure of the growing Tooth. This incision should be made early on the first appearance of inflammation or fever, provided the operator is assured, by the age of the patient, and other considerations deducible from what has been said in the first part of this work, that the Tooth is perfectly formed, and not far distant from the surface of the gums. For it is trifling with the disease, and a timidity only founded



founded on inexperience, to defer the operation, as is commonly done, until the gums are considerably elevated and pointed, since the chief danger and pain are then at an end, and nature is sufficient for the purpose.

In making this incision, some judgment is necessary, to hit exactly the perpendicular line of the Tooth; otherwise it will be of no use, and the Tooth will take another course. The incision should likewise be made in the line of the edge of the Tooth, and at the same time sufficiently large and deep, that it may not close quickly, and that no slips may be left in the way uncut. After this, the gums should be constantly moistened with a little milk mixed with decoction of poppy heads, to lessen the sensation and pain; and as the free discharge of saliva is found to give some relief, a little China-orange-juice may be added occasionally; as soon as it can be used without exciting pain in the extremities of the divided vessels.

As

As to the custom of encouraging children to chew upon coral, wax, and such like bodies, I am of opinion that it is always either hurtful or useless: For when the gums are not inflamed, the work should be committed intirely to nature, and not to the impatient capricious fancy of an infant, who, guided only by the feelings of the present moment, bruises the gums against the sharp edges underneath, and brings on inflammations that would not perhaps have happened, were the work permitted to be done by slow and insensible degrees.

But when the parts are already inflamed, most certainly such pressure, irritation, and wounding of them, as happens in biting a hard body, must increase every evil. I am therefore for leaving the whole to nature, whilst she is indulgent, or for making a free passage at once, as directed above, when it is necessary. I think also the *Nurses* act very imprudently, who endeavour to cut the gums with their *Nails*, or a sixpenny-piece; as

as nothing can be more evidently erroneous than the common notion, that it is safer to cut them in this manner, than with the *lancet* : It is to be hoped, therefore, such practices will not be continued..

### C H A P. III.

#### *The Care and Treatment of the Second Dentition.*

**I**T is observable, that in the first dentition the Teeth are seldom or never discoloured, ill-placed, or subject to any pain, except what arises from the cutting of the gums. But in the second dentition, it happens otherwise; because the first stamina, whilst they lie under the Milk-teeth, are frequently affected, and even destroyed, by the inflammations, suppurations, and other disorders occasioned by the first dentition; because, in their tender yielding state, they are often furrowed and indented by the pressure of the Milk-teeth, stunted in their growth, thrown out of their proper direction, and sometimes turned in their sockets,

sockets, so as to leave interstices, in which small portions of food are apt to lodge and rot, and forward the production of tartarous conerctions, caries, &c.

The second dentition, therefore, requires as much care as the first, and indeed as frequent observation of its progress.

After the sixth year, the Milk-teeth are gradually urged by the set underneath, their roots are destroyed by the constant pressure, and then the bodies easily give way, without pain, in the ordinary course. When it happens that the roots of the Milk-teeth are stronger and harder than usual, and that the succeeding set is soft and feeble, the Milk-teeth retain their places, and last to old age: If the new growth is vigorous, but yet finds the Milk-teeth too hard and firm to be expelled, it takes a new course, and sliding by them, emerges above the gums, on the outer or inner side, forming a double row in one or both jaws, sometimes  
compleat

compleat thro' the whole anterior arch, sometimes only double in one, two, or three places: and this is the true cause of odd *supernumerary Teeth*, or *double rows*. Sometimes the resistance or pressure of the Milk-teeth only produces indentures, or hurts the shape of the succeeding set: But the most common evil arising from neglected dentition, is the unevenness or irregular position of the Teeth, which happens when the Milk-teeth are pushed out by the succeeding set; but not without having first given such oblique resistance, as to throw them out of the just and symmetrical order in which nature would have placed them.

It is well known that some of the anterior Teeth come forth much earlier than the others; and we have already observed, that the anterior Teeth in the dentition are considerably larger than the Milk-teeth of the same part, at the same time that the first and second molares of the first dentition are larger than those of the second dentition which succeed them.

Hence



Hence it happens, that a fore Tooth of the second dentition, has not only to encounter with that which lies immediately over it, but also with one or both of the neighbouring ones: And if these are not ripe for shedding, or if they are permitted to remain too long, the emerging Tooth must either be thrown out of order, or it must be stunted and indented by rising into a very narrow space. These, I say, are the true causes of snagged, rough, and indented Teeth: And were parents and governesses duly informed of the importance of such early care as I endeavour to recommend, I am certain the usual negligence on this occasion would not so long continue, nor would disordered, ill-set, or discoloured Teeth be seen so often in advanced life as at present.

Such deformities are easily obviated, although not easily cured; for if a child at his sixth or seventh year is put under the care of a person who is competently versed in anatomy, and the nature and progress

progress of this dentition, he will determine what Teeth are first to be expected; and by the feel, position, and colour of the Milk-teeth, he will be able to judge, whether they should be removed immediately, or when they may be safely left for a longer time. This likewise with some certainty may be determined, even by the parents or governesses, in the following manner.

The second dentition comes nearly in the same progressive order as the first; and from what has been said in the first part of this work, it is easy to ascertain what Teeth are to be expected and assisted first, and what are the common intervals between the successive protrusions of the rest, the whole taking six or seven years.

Now since it is certain that the roots of the Milk-teeth are removed and destroyed by the pressure of the set underneath, long before the time of shedding, provided things go on in the proper course,

course, it is to be expected that a Milk-tooth, about the ordinary time for its falling out, should be somewhat less firmly fixed in its socket, than a Tooth whose root is long, and well supported. I do not mean, that it should at this time be very loose, or that its motion should be distinguishable to the eye, when it is forced backward or forward by the fingers; but that it should discover, to a nice touch, such a degree of instability as can be judged not to belong to a long rooted, well-fixed Tooth.

In this manner, I say, it may be known when the Milk-tooth has lost its root, when it is not very likely to oppose the growth of that which lies under it, nor to throw it into a wrong direction, and how long the case may safely be committed to nature.

But if, at the ordinary time of this second dentition, no degree of looseness can be felt even in the front incisors, which generally fall first, it is a sign that  
the

the growth of the set underneath does not proceed with vigour, and that the adhesion and firmness of the Milk-teeth overmatch its protruding power.

In this case a prudent and well-timed extraction of the Milk-teeth, at proper intervals, insures a quicker growth of the succeeding set, and a beautiful arrangement of them; because all oblique pressure or resistance is removed.

Some people, who have committed the care of their children, in due time, to a surgeon-dentist, and yet have not obtained for them the advantages expected; will reply on this occasion, that the extraction of the Milk-teeth, and all the care of the surgeon-dentist, is of little use. It is necessary to observe therefore, that the failure of success has not been owing to the universal defect or inutility of the art, but to the timidity of the artist, or to his not being acquainted with the fact related in page 14. A fact, which has never, before this time, been  
duly

duly attended to, nor even mentioned by any author or practitioner that has yet fallen in my way.

Now, if what I have said on that occasion be admitted for truth, it is plain that the common practice of removing a single Milk-tooth, to make way for the young Tooth that lies under it, is not sufficient to insure success: For, since the fore Teeth of the second dentition, on account of their increased bulk, must, and *do* edge away towards the molares, to encourage the free and regular growth of one front incisor, it is absolutely necessary to remove not only the milk incisor that stands fairly over it, but also the lateral incisor that lies over it *in part*: And so on for the rest progressively. I say, wherever a proper use is made of this observation, neither the patient nor the dentist will be disappointed.

But great caution is necessary here; for it is to be considered that the stamina of a second set, have in some cases been destroyed



stroyed by preceding disorders, and then it is better to leave the Milk-teeth, which sometimes last to old age, than to rob the patient of so valuable an ornament.

Such a case however is very rare, seldom extends to above one Tooth, and cannot lead a judicious dentist into considerable error; for the first Tooth extracted shews by the state of its nerve and root, whether there is another underneath or not; and if the doctrine of a third set of stamina has any truth, this gives it the fairest opportunity of coming to maturity.

When the Milk-teeth, about the sixth or seventh year, from being even and well set, begin to turn irregular and snaggled, it is plain to demonstration, that the succeeding set does not press on their roots in the proper direction, and that such an oblique action and re-action is as likely to throw the new set out of order, as it has evidently affected that whose irregularity is visible.

So

So soon as this is perceived, whether it be in the fifth or in the eighth, or any intermediate year, every Milk-tooth so departing from its natural position should be instantly extracted, that the young Tooth beneath may no longer be urged obliquely, but that it may be free to rise in just and proper order.

In drawing these Teeth great care should be taken to make use of proper instruments, and to apply them in a judicious manner——the only security against breaking the root, or the edge of the socket, or tearing or bruising the gums; for any error committed here, endangers the young shooting Teeth, which may be easily disordered or destroyed by inflammation, or purulent matter falling on the socket and surrounding membranes.

Thus in early life we may be preserved from a deficiency of Teeth, from double rows, from supernumerary Teeth  
standing

standing obliquely against the lips outwardly, or against the tongue within, and thereby occasioning ulcers and constant uneasiness, exclusive of the deformity. Thus we may, in general, be preserved from diseased, stunted, indented, and discoloured Teeth; for these are the consequences of inflammations, suppurations, pressure, and obstruction, which we have taught to obviate. And finally, we thus prevent that want of symmetry, and regularity of the Teeth, which not only robs the countenance of its greatest ornament, but also gives rise to discolouring tartarous concretions, and a variety of evils.

## C H A P. IV.

*Of Irregularities of the Teeth, and the Reduction of them by Ligature.*

**I**Rregularities of the Teeth are extremely frequent, where none of the above-mentioned precautions have been taken, and where the second as well as the first dentition has been neglected as a matter of no concern: It is often required therefore to correct by *art* what at first might easily have been prevented.

To bring Teeth that are ill set into beautiful order at any time of life is promised every day in the public papers, with the greatest assurance, by several people who profess themselves *Dentists*; and I am afraid that there are people enough to believe such advertisements, and to accuse every man of ignorance who should affirm that it is impossible. Yet notwithstanding all this, I will freely own, that I never have, nor ever will

will attempt this ingenious practice in grown people; for reasons which I shall assign, after having first shewn the different methods of it.

The first is to pass a gold wire or silken ligature from the neighbouring Teeth on either side, in such a manner as to press upon that which stands out of the line, in a direction which shall tend to reduce it.

The second is to fix a thin elastic gold plate of the breadth of a watch-spring on that side of the Tooth which recedes most from the proper line, and then to fasten the ends of it to the Teeth on either side, so that the bent of the spring may tend to press the irregular Tooth back to its place. This and the former contrivance may be applied where one or more Teeth incline inwards, as well as when they project externally.

The next method is not quite so gentle, and consists in breaking the Teeth  
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into order by means of a strong pair of crooked pliers, after which the ligature is to be applied.

The last is, to file them into order.

In advanced age it is well known, that the Teeth are so deeply and firmly fixed in the substance of the jaw-bone, that it requires a considerable power to force them out of their places, and that none of the bones at this period will yield to slight continued pressure, in the manner that the tender growing bones of children will do. But without a yielding of the bony sides of the sockets, or of the flinty substance of the Teeth, how is it possible to bring a Tooth that projects outward, or that inclines to the inside, into the proper line? Or supposing this were feasible, if the pliant bones of children require a considerable length of time to effect such alterations, what would be the time necessary on this occasion? what the degree of pressure? who could support such lasting uneasiness? If we  
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may tell the truth, such notions belong to fancy, not to practice; and such promises are founded on ignorance, or intended for *deceit*.

The same observations apply to the second method, or to those that pretend to have used the elastic plate successfully.

As to the third, it is such a treatment as need not be opposed; because it is not credible that any grown person is so easily persuaded, and so regardless of pain, as to submit to the trial. But supposing the case was otherwise, it is well known that a Tooth in a grown person cannot admit of any considerable change of situation, without being raised out of the socket; so that whilst the operator brings it into the line on one hand, he raises it above the level on the other; he destroys its connections, exposes it to looseness, pain, and decay, and makes it incapable of bearing the ordinary impressions in chewing; an evil that is much greater than the total loss of a Tooth.

As to *filig* the Teeth into proper shape, size, and order, I know that it is practised every day, and shall therefore consider it more at large, after I have first pointed out some instances where the reduction of the Teeth is practicable and safe, and which serve as a pretext for the exaggerated accounts, and the incredible pretensions of those who promise to succeed at all times.

Between the seventh and twelfth year, whilst the Teeth are growing, and the sockets in a condition to yield by degrees to any constant pressure, if the edge of a Tooth stands out of its proper direction, it may oftentimes be brought back, provided the patient will bear a ligature, as described above, to continue on for a long time, and to be tightened occasionally; provided likewise that the projection of the Tooth out of its required direction, be not very considerable, and that the pressure do not fall solely on the two neighbouring Teeth; for it always should be divided by throwing a few turns  
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of the wire or ligature over some of those that stand at a distance. The use of the elastic plate is more inconvenient to the patient, but not more effectual than this method; and the application of instruments, to force the Teeth at once into order, is extremely dangerous at any age; since it is more likely to loosen them, and make them fall, than to give regularity and beauty.

## C H A P. V.

*Of the Use and Abuse of Filing to remove Irregularities of the Teeth.*

**T**HERE are many instances in which it is adviseable and safe, as well as ornamental, to file the Teeth; but as it is usually practised, nothing can be more pernicious.

Since it cannot be supposed that any man is so lost to shame and humanity, as to expose his patient to pain and incon-

venience during life, merely for the sake of a trifling fee, the indiscriminate filing of Teeth, that is so common at present, should be imputed only to ignorance, and may I hope be checked by placing the subject in a clear light, and by drawing the line, to distinguish where it may, and where it may not, be practised with safety.

1. In people far advanced in years the Teeth may be filed into order without any inconvenience; because the nerves are lost, the Tooth can feel no pain in the operation, nor afterwards from cold, acids, or sweets, and because they are not then so much subject to caries or decay.

2. Where a Tooth projects beyond the common level, and hinders the rest from meeting equally, or receives on itself alone all the pressure that should fall divided on a whole set, there filing is necessary at any age to remove the greater evil.

3. Filing



3. Filing is necessary and adviseable to remove sharp points, occasioned by fracture or otherwise, which irritate and wound the lips and tongue; because in this case the bony part of the Tooth is already exposed; and cutting off the sharp prominences cannot make it more liable to caries or pain, than it otherwise would be.

4. Where a Tooth points obliquely against the tongue, or against the lips, as often happens on account of the resistance of the Milk-teeth, it is necessary to round the edge by filing, to prevent its wounding the soft parts.

5. When the edges of the Fore-teeth are uncommonly sharp and thin, and therefore apt to splinter, it is very proper to file them down, to give them a more obtuse and durable edge.

6. Filing is likewise adviseable to remove caries, to prepare a Tooth for the reception of a new crown, and in a few

similar cases related in the second part of this treatise.

7. When the Teeth stand irregularly, and are too broad to admit of being reduced to one uniform line, filing between them to lessen their size may be practised to a certain degree : But great care should be taken not to cut away the enamel totally, as is too often practised on this occasion.

If a man had no feeling, nor any other use for his Teeth but for ornament of his countenance, I should not limit the use of the file to these cases only. But since most people, from infancy to middle age, feel insufferable pain the very moment the file touches the bony substance ; and since this pain must be very often repeated, because each successive surface of the osseous substance must have some time to wither, and lose a part of its sensibility, before it can admit of filing beyond a certain depth ; since it happens likewise, that the enamel once removed is never  
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regenerated, that a Tooth in this naked state is for a long time affected with pain from the slightest impressions of cold, acids, sweets, &c. that it wears away quickly, and is very much subject to decay; I cannot join to support the common practice of indiscriminate filing; I think it should be confined to the cases above related, for I believe it is advisable in these only.

Hence it is, that I so frequently refuse to perform this ornamental operation for my patients, and that I have often advised young people, who have credulously listened to advertisements and promises of this kind, never to barter a sure and valuable blessing, for such a painful, dangerous, short-lived ornament: For ill-set or irregular Teeth may last healthy and unpained to the latest period of life, and the deformity in general is not very great, provided they are kept clean, white, and polished.

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The cautions that are to be observed in filing, and the methods of reducing the projecting Teeth to one uniform edge, so that the upper and under rows may touch every where, when the jaws are approached, I shall not touch on at present; having through the whole endeavoured not to swell this work with descriptions that are only intelligible to operators, who ought to learn the mechanical part of this art from experience and not from books. I will not however conclude this chapter, without observing, that the people of this country, who practise on the Teeth, are not quite so liberal in their promises, nor so fond of cutting and filing, as the *Gentlemen* who quit the Continent *for our sakes*, and walk in a more exalted sphere, piquing themselves on the dignity of having served *Counts* and *Marquises* in the station of *valets de chambre*, and of having seen the art of filing practised in twenty provinces.

C H A P.

## C H A P. VI.

*The Method of preserving the Whiteness  
and Polish of the Teeth.*

**T**HE generation and texture of the tartarous and other matters, which discolour the Teeth and destroy the shining polish of the enamel, and the evils which attend long neglected complaints of this kind, together with the methods of cure, we have considered pretty fully in the second part of this work; but referred the preventative treatment, and all that concerns the beauty of the Teeth, to this place.

The methods of whitening the Teeth and of preserving them from tartarous concretions, or discolouring slough, are very different in this City, and seem to concur only in this one point—that they all are extremely pernicious, as they are now used, excepting only where the tar-  
tarous



farous matter is removed by the instrument; for all act directly for the destruction of the enamel, either by *mechanical grinding* or *chemical dissolution*.

These of the former sort, whether sold under the name of a powder or electuary, whether whitened or darkened, or otherwise coloured by certain additions, are always composed of pumice-stone, emery, or some other cutting powder.—These of the latter sort however tinged with sanguis draconis, cochineal, alkanet-root, or other drugs; and however changed in taste by spirituous, camphorated, and various mixtures, are always composed of *mineral acids*, particularly of the vitriolic; and although, in *modesty*, they are called tinctures, &c. they are really very powerful menstrua to soften and destroy the enamel.

That the powders which are usually sold for cleaning the Teeth do in some measure hurt the enamel, is too obvious  
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to need any argument; but it is not generally believed that they are so pernicious, as to deserve particular notice or censure. I thought therefore, it would not be improper to put this matter to the test, and to ascertain, as nearly as possible, in what time, and how far they are or are not destructive.

I fastened in a vise a sound and well enamelled human Tooth, placing the convex side uppermost: I then took a brush, wetted and charged with a certain Tooth-powder, which I had bought for the purpose, and in less than an hour, by rubbing quickly with this brush and powder, I wore away entirely the enamel of the part which was exposed to their action.

The like experiment I repeated with all the different Tooth-powders which are sold in this city, and found the same effects varied only a little in time, according to the coarseness or fineness of the

the powder, and the different hardness of the enamel.

Now it is well known, that a number of people brush their Teeth with powders of this kind two or three times a week; and if we allow that the brush and powder generally act on the front Teeth briskly for one-fourth of a minute each time, in the space of a month they act three minutes, or in two years seventy-two minutes; that is to say, in the space of two years, the Teeth have undergone a great deal more brushing than was found sufficient to destroy the finest and best enamel.

Hence those that brush with powders only once a week do not destroy the enamel in less than five or six years; and those who use powders but rarely can never be brought to believe, that their Teeth are injured by them, because the destruction creeps on too slowly to be observed.

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To all this, I presume, it will be objected, that the enamel is known to encrease in thickness from childhood to puberty, although some part of the original growth is certainly worn away in the mean time; and since it evidently appears from thence to admit of growth and repair, it may do so likewise at a more advanced age, and supply whatever is lost by the use of Tooth-powders. It may be added too, that altho' it seldom or never is restored in a part where it has once been totally separated from the bone, yet it may, like the *bark of trees*, receive new layers, and be repaired so long as any part of its internal substance remains unhurt beneath.—But all this reasoning is founded upon suppositions, which are not yet countenanced by any certain evidence, and therefore cannot be opposed to daily observations and matters of fact, which teach us that the enamel wears away quickly, even in mastication, after the twentieth or thirtieth year, and that it is totally lost  
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at a very early time of life in those who use Tooth-powders imprudently.

Some people, who have been convinced of this truth by striking examples, imagine that the danger may be avoided by using a cloth instead of a brush. To try whether this notion is well founded or not, I took a well enamelled human Tooth, and fixing it in a vise, in the manner already mentioned, I rubbed it smartly with a cloth, dipped in Tooth-powder for half an hour, by which time I found the enamel quite worn away. Having repeated the same experiment several times, I found that the cloth destroys the enamel in half the time which was found requisite for this purpose with the brush; for which reason, and because it does not enter the interstices of the Teeth, it is evidently more destructive, and much less effectual in removing the tartar.

Having thus endeavoured to explain the action of Tooth-powders, and pointed



ed out the evils occasioned by the indiscriminate use of them, it is necessary, for the instruction of my readers, and in justice to the people who are interested in the sale of such things, to shew where they may be applied without any danger, and how under due restrictions they sometimes conduce to the duration as well as to the ornament of the Teeth and gums.

1. Where the Teeth are discoloured with a very thin scale of tartarous matter, or by a superficial tarnishing of the enamel, the common Tooth-powders may be used, until that substance is worn away, but no longer, on any account whatever.

2. After a thick tartarous crust has been removed by instruments, any Tooth-powder may be applied to remove whatever slight discolouring matter still adheres to the enamel; but when that is gone, they should be no longer continued.

3. Lastly,

3. Lastly, those who cannot brush their Teeth often, or take proper care of them, for want of leisure and conveniencies, may use rough Tooth-powders once a month, to clear away the tartar expeditiously and compleatly; because the evils arising from total neglect, with those especially who are by constitution disposed to generate tartar very quickly, are greater in general than any that can be produced by this sparing use of Tooth-powders.

Tinctures for cleaning the Teeth are so easily applied, so effectual, and contribute so largely to the dentists profit, that I wish it were consistent with truth, and the safety of those who might be induced to use them, to speak in their favour, or to retract what was said in the beginning of this chapter.

The daily instances of their bad effects, and their being composed of mineral acids, have long been used as arguments against them, by impartial and  
good

good judges; but to no purpose, for their assertions have been little credited being but carelessly supported, and they have not been conveyed to the people in so effectual and general a manner as the plausible and artful addresses of advertising nostrum-mongers.—It still remains therefore to clear up this matter in a manner suitable and satisfactory to the generality of readers. It is to be observed however, before we proceed farther, that most of the people who sell tinctures for the Teeth and gums keep two sorts, and make a very just distinction in the sale of them. One is given for strengthening the gums, for curing ulcers, flabbiness, and bleeding of them, and the stinking breath occasioned by such complaints. This is generally composed of innocent astringents, grateful resinous substances, spirits, &c. is a good liquid to wash with, when the gums require it, and is entirely harmless whether they want it or not. But the other sort of tincture, which is sold for *whitening the Teeth*, &c. &c. &c. is universally

universally composed of mineral acids diluted and concealed by various artifices.

This is evident from the sour astringent taste; from the roughness and peculiar sensation of the Teeth when these tinctures are applied; from their losing these properties and becoming neutral on the admixture of an alkali; from their effervescing with oil of tartar, as much as can be expected from an acid so much diluted, dulcified with spirits, and covered artfully by camphor, colouring drugs, &c. And lastly, from their whitening the Teeth, which cannot be done *so speedily* by any menstruum except a mineral acid. Let us then examine the power and effects of mineral acids thus applied.

I put half a dozen sound and well enamelled human Teeth into a glass full of spirits of nitre: In a quarter of an hour the shining polish of the enamel was destroyed. In six or eight hours the substance

stance of the enamel and of the bony root of each Tooth was cut away to a considerable depth, and the enamel that still remained was so much altered, as to be easily scratched and cut with the point of a knife: In three days the Teeth were totally destroyed.

I then put the same number of sound Teeth into a glass full of spirits of nitre diluted with an equal quantity of water, and placed the glass near the fire, so as to receive a heat nearly equal to that of the human body. The effect was the same as in the former experiment, with this difference only, that the solution proceeded much more slowly.--The *Nitrous Acid* therefore, whether strong or diluted, can destroy the enamel as well as the bony substance of the Teeth, although it should be used but very sparingly, and not permitted to act for any considerable time: It is evident likewise, that the softness which it occasions in that part of the enamel which it has not had time

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to dissolve, is extremely hurtful to the polish and duration of it.

The *Muriatic Acid* tried in the same manner softens and dissolves the enamel and bony substance of a Tooth, almost as powerfully as spirits of nitre: And it is remarkable, that whilst it dissolves the external surface into a ropy mucus, the internal parts are discoloured to a considerable depth, and turned into a semi-transparent horny substance. Hence, perhaps, arises the bad colour of the Teeth so remarkable in seamen, who live on salted food, and whose blood is said to be charged with sea or ammoniacal salt.

I treated several sound Teeth with the strongest *Vitriolic Acid* in the same way, and after a few hours found them extremely white; but neither the enamelled or bony parts seemed to be dissolved, as happened when the nitrous or marine acid was used. I let them lie therefore for three or four days, and even then the  
quantity

quantity dissolved was not considerable but the enamel became rough, and so far altered in its texture, that I could easily scratch it with a knife: The colour also, instead of being a semitransparent white near the edges, was a dead white like that of chalk.

I then tried the same acid variously diluted, and found it to act as powerfully and directly in the same way, when mixed with six times its quantity of water as when undiluted.—It appears therefore, that it is more effectual than the others in whitening the Teeth, that it does not destroy them quite so fast, and it is judiciously chosen by those who sell tinctures for cleaning the Teeth, as the least pernicious of all the mineral acids.

But although it acts slowly the destruction which it brings on is not the less certain. When once the Teeth lose their polish, the tartar is constantly renewed, the acid must be as often repeated; and a few months can do effectually

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usually with the *vitriolic acid* what a few days will effect with the nitrous or marine.

I can easily foresee that those who recommend tinctures for cleaning the Teeth, will endeavour to evade these arguments by saying, that they are only used where tartar covers and defends the enamel, or that they are so much diluted as to be incapable of attacking it.—But it is well known, that the edges of the Teeth are very rarely covered with tartar, even in those whose Teeth are very tartarous near the gums; wherefore, the exposed enamel must suffer in this part, whilst the tartar is slowly dissolved elsewhere: And it needs no argument to prove, that if oil of vitriol with six parts of water can visibly affect the enamel in two or three days, it may destroy it totally in a few years, although it should be greatly diluted beyond this proportion.

Indeed, to talk of the dilution of the acid is a very weak evasion of the truth; because, if vitriolic acid be so greatly diluted

diluted as not to affect the enamel in a considerable space of time, it is proportionally incapable of dissolving the tartar, as I have repeatedly experienced : Therefore, the strongest vitriolic acid that can be used in this way will hurt the Teeth as little as the weakest, because it need not be long applied ; and if the enamel be twenty times less soluble than the tartar, one certain portion of the enamel that is exposed will be destroyed for every twenty portions of tartar, whether it be applied weak or strong, for a minute or for a year.

Observing that one of the most celebrated tinctures for whitening the Teeth lets fall an earth like that of allum, when a little alkaline liquor is added ; I suppose it will be alledged, in farther defence of them, that the vitriolic acid is in a neutral or aluminous state, which will not allow it to act as a pernicious solvent.

If it is no longer a solvent, how comes it to dissolve the earthy tartarous concretions of the Teeth?—If it can destroy these, why not the earth of the enamel too, as usual, and in a degree proportioned to its solubility?—Or supposing we were to say at once, that most tinctures for whitening the Teeth are chiefly composed of allum-water and spirits, for the flavouring or colouring drugs are nothing to the purpose, will this prove them to be harmless?—Not at all.

A solution of allum mixed with spirits lets fall a great part of its earth: The acid thus forsaken takes but slight hold of the spirit, and is ready to attack any earthy body that has an affinity with it: Wherefore, allum-water and spirits, however coloured or scented, form a liquor as hurtful to the Teeth, as a mixture of oil of vitriol and spirits containing an equal quantity of naked acid.

Exclusive of the effects of this acid, as a solvent of the earthy parts of the enamel,



enamel, there is another consideration that is still more weighty and more demonstrative of its pernicious effects.—I observe, that the enamel cracks and splinters away from the Teeth of those who use acid tinctures, and is thus totally lost, long before the acid has had time to corrode it to any considerable depth: Were it not improper in my business to mention names, I could recite a great many instances of this kind.

But notwithstanding the daily proofs of this effect of the vitriolic acid, which has occurred in practice, I must own I was always willing to refer the splintering and mouldering of the enamel to other causes, even in those who used the acid tinctures; until the following experiment taught me how easily its hardness and texture may be destroyed without any *visible loss of substance.*

If a Tooth be placed on a red hot poker, and held thus over a sheet of clean paper, the enamel presently flies off in

small pieces, with a crackling noise: But if it be gradually warmed and advanced to the hot part of the poker, until the bony part of the Tooth begins to smoke and turn black, then the enamel does not crackle and fly to pieces so much as in the former case; and in a number of trials it may be separated almost entire from the parched bone in the form of a cup: It still retains its shape and size, that its polish is gone; its semitransparent white is turned to a chalky white mingled with grey, occasioned by the oily smoke of the bone; and in place of a flinty hardness, it breaks between the fingers, and can easily be scratched with a knife.

That principle, therefore, which gives cohesion to the enamel, is very easily expelled, is a very small, nay, an invisible part of the whole, and may be acted on by the vitriolic acid as well as by a slight heat. Were these experiments pushed farther, it might, perhaps, be easily proved likewise, that the nitrous  
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and marine acids act on the earthy and all the parts of the enamel, whilst the vitriolic attacks the cementing principle chiefly, and the *earthy* one, by very slow degrees.

But the dangerous tendency of acid tinctures for whitening the Teeth, does not seem to be confined to this direct action on the enamel and bony substance. For in those who have used them long, I have generally observed the connexion between the Teeth and gums to be greatly injured, and sometimes so far destroyed, that the corrosive liquor could easily make its way into the sockets. I will not be so positive as to say, that this was owing to tinctures only; but I am very certain, that tinctures of this kind are particularly dangerous, where a bad state of the gums permit them to find a passage into the sockets, or to attack the Teeth below the enamelled part.

Let us now proceed to teach how the beauty of the Teeth may be preserved.

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from infancy to old age, by such care and treatment as shall be free of all the dangers which belong to powders, electuaries and tinctures.

As soon as the second Teeth appear the parents and governesses should take care to make the children wash their Teeth every morning with common water and a convenient Tooth-brush; and after meals they should be accustomed to rinse the mouth, and rub the Teeth with their fingers, when a brush cannot be conveniently used. Those who constantly observe such instructions may depend upon being for ever free of tartarous matter, putrid slough, superficial discolouring, flaccid gums, and from the pain and looseness of the Teeth, arising from these causes.

I know it is a very common opinion that brushes are hurtful to the gums; and the only reason that can be assigned for it is, that brushing makes the gums bleed, that it therefore seems to wound them,

them, and disturb their connexions with the Teeth. It is true, no doubt, that brushing the gums will have this effect at first, with those that have not been used to it, and whose gums are soft or fungous. But where it is constantly used, instead of hurting, it gives a salutary irritation, it fills the vessels, elongates the fibres, and gives a firmness to the gums, which conduces greatly to the soundness and duration of the Teeth: Add to this, that the reliques of food or slough of the Teeth cannot be cleared away so effectually by any other method. —Some people prefer the fibrous end of the prepared marsh-mallow-roots, which is sold in the shops under the name of dragons blood; but it is not by any means so good as a brush, because it cannot enter the interstices so well, because it is apt to leave its broken fibres between the Teeth, because it is not durable, and above all, because it acts like a cloth, which we have shewn to be hurtful.



Where the Teeth have been neglected at first, and when tartarous matter has already fastened to them, after having removed it by instruments as mentioned before, they should be rubbed for some time with a fine testaceous powder such as I usually recommend, to remove whatever discolouring matter still remains: Then when the enamel becomes perfectly clean, white, and polished, even this fine powder should be used very sparingly at distant intervals, and the colour and smoothness are to be preserved by frequent brushing and washing.

It often happens that the enamel itself is tarnished throughout its whole substance, and that the removal of the tartar cannot give a fine colour. In this case, the patient, if he is not well advised, continues the use of powders, and tinctures, until the enamel is destroyed; or he goes to some ignorant operator, who, thinking the business not finished, nor his fee earned until the Teeth become white, employs his files and cutting powders,

powders, until the enamel is wholly destroyed, and until he exposes the naked Tooth to a train of evils.

Having recommended above, the use of instruments to remove tartar, in preference to any other method, it is necessary to set this matter in a proper light, and remove a very ill grounded popular prejudice.

It is commonly imagined, that it is much safer and gentler to remove the tartar by means of Tooth-powders, electuaries, and tinctures, than by means of steel instruments. To this it is only necessary to answer, that the enamel of the Teeth is as hard as the hardest steel, and the edge of a steel instrument sliding obliquely on it, can no more injure it, than the edge of a knife applied in the same manner, can scratch a pane of glass. But that grinding powders which cut the hardest steel, or that chemical liquors can destroy the enamel, is plain to daily observation and common sense.

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The distinction also which I make between soft testaceous powders and the coarse emery or pumice-stone powders, commonly sold, is justly founded; because the former smooth the enamel without grinding it away, after having removed the tartarous matter; but the latter cut it away quickly, and leave behind them a coarse and scratched surface which favours the fresh growth and adherence of the same sort of matter.

## C H A P. VII.

*Of vegetable Acids, Sweet meats, violent Efforts, Picking the Teeth, Smoaking, &c.*

HAVING treated of the mineral acids, and endeavoured to restrain the excessive use of them, I think it is necessary to consider the *Vegetable Acids* and *Sugar* in like manner; since they have often been mentioned in the preceding parts of this work, and represented as hurtful to the **Teeth** in some of their

their disorders, if not in their soundest state.

It does not appear by any experiments made on the human Teeth, that vegetable acids are powerful solvents of the enamel; but since they are known to act on calcarious earths,——since they are found to soften bones and the shells of eggs,——and since they can often make their way to the naked bony calcarious parts of the Teeth below the enamel, I think it is very obvious, that on these principles *they* may hurt the Teeth;——and the roughness, Tooth-edge, and pain, which they excite, joined to daily observation of their destructive effects, prove clearly, that they do. Hence it happens, that the inhabitants of the West-India islands, and of other southern climates, where acid liquors and fruits are used plentifully, very seldom have good Teeth.

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With respect to sweet-meats, it is not easy to determine how they act on the Teeth, although the disagreeable sensation excited by them, and frequent experience prove that they really are injurious.

The chemists say, that since vegetable acids destroy the Teeth, sugar may do the same, because it is an acid enveloped in oil, which it may readily quit to unite with the calcarious earth of the Teeth. They add, that many mild liquors dissolve hard bodies; thus mercury dissolves gold, oil dissolves brimstone, the weakest acids dissolve metals and stones, water dissolves salt, or the tartarous dregs of wine; and sugared solutions, which by a little warmth may soon be turned to an acid liquor, may easily be supposed capable of dissolving and destroying the earthly basis of the Teeth.

Whether this be true or not; whether sugar acts by softening or corroding [ the bony fibres, or according to others  
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by affecting the nerves, and bringing on internal disorders, or else by hurting the connexion with the gums; thus much is beyond all controversy,——that sugared meats or liquors render the Teeth more susceptible of pain from slight impressions of cold or chewing, and that the people who eat most sweetmeats are the most subject to disorders and deformities of the Teeth. The peasants and poor farmers suffer less in this way *than those of rank and opulence*, who eat of second courses; and I am credibly informed, that in the Low-Countries, where sugar, tea, and coffee, and sweetmeats are used to excess, the people, even at an early age, are remarkable for the badness of their Teeth. It is therefore adviseable to eat of them but seldom, and always to wash the Teeth after them.

Cracking nuts is often hurtful to the Teeth, by breaking the enamel; as is also the custom of some *girls*, who cut the thread with their Teeth when they sew,

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to prevent the trouble of taking up the scissars.

The boyish custom of raising weights with the Teeth, and of carrying a table or chair in the mouth, is as dangerous as it is absurd, and therefore should not be attempted by any reasonable person.

As to the constant use of Tooth-picks after meals, I am clearly of opinion that it is a very bad practice. For all Tooth-picks, and particularly those that are made of metal or wood, by being often pushed between the Teeth, destroy the gums, and widen the interstices, so as to furnish more convenient lodgment for the food, and render the custom of picking every day more and more necessary.

If people after a long habit cannot refrain from such practices, the Tooth-picks made out of quills, or the slips of the Spanish thistle, do less injury to the Gums than any others. But to those who are willing to follow the safest and most effectual methods, I recommend the

the use of the straight Tooth-brush, which has the hair fixed in the end, somewhat like a painter's pencil. This sort of brush, if it be well made of short stiff hair, instantly removes whatever scraps of food have lodged between the Teeth, and instead of hurting or pushing down the gums, gives a salutary stimulus, as we mentioned above, which encourages their growth and adhesion.

I observe in people that smoke Tobacco constantly, that the enamel of the Fore-teeth has many fissures, which run chiefly from the edge downwards; I am therefore inclined to think that smoking is hurtful to the Teeth, although it be found serviceable in defluxions, on account of the discharge which it occasions, and on account of its sedative virtue. But whether this opinion be well founded or not, it is certain, that with those who catch the pipe between their Teeth, the enamel in that part wears away remarkably, in process of time, by the constant friction of it.

C H A P.

## C H A P. VIII.

*Of the Care and Treatment of the Teeth in old Age, and of artificial Teeth and Gums.*

THE diseases of the jaws, which generally attend old age, are recess of the gums, prominent Teeth, loose Teeth, and the loss of Teeth; all which, together with the various methods of obviating them, or at least of checking their speedy progress, having been already considered; to avoid repetition, I must beg the reader to collect from each respective chapter on these subjects, whatever instructions may be found necessary and applicable in the present case; I shall only add a few words concerning artificial Teeth and gums.

Although artificial Teeth are evidently ornamental; although they give a healthy juvenile air to the countenance, improve the tone of the voice, render pronun-  
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tion more agreeable and distinct, help mastication, and preserve the opposite Teeth from growing prominent; yet many are prejudiced against them on account of some inconveniencies which are often found to attend the use of them. For they are said to become very soon yellow and dirty:—To give a stinking breath:—Not to sit easy on the gums: Seldom to stand firm:—And to loosen after some time the neighbouring Teeth to which they are fastened.—Or, the hard ligature, which is commonly used, is often seen to cut very deep into the sound Teeth.

It frequently happens, no doubt, that there are just grounds for these complaints; but they are generally owing to the fault of the artist, the negligence of the patient, or the want of proper instructions.

Artificial Teeth formed out of soft bone or ivory, soon lose their colour, but they may be made of materials which are more durable, and will retain the polish  
and



and whiteness for a long time; and the people who wear them, should be taught to brush them often with proper powders, and to avoid as much as possible red wines and staining liquors.—With these precautions, and frequent washing, they never give a disagreeable smell to the breath.

Their not sitting easy on the gums, is owing to their resting unequally on them, and to their not being well hollowed and formed to answer every prominence and depression of them.

Whenever it happens that they do not stand firm, it is entirely the fault of the artist, who has not made them to fit exactly, or has applied the ligature injudiciously.

It must be acknowledged, that when an artificial piece is made too large, it is apt to bear hard on the neighbouring Teeth, and to strain them outwards. On the other hand, when it is made too small the ligature draws the neighbouring

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ing Teeth inwards, and thence is apt to loosen them. But if an artificial Tooth, or a piece consisting of several artificial Teeth, is well fitted exactly to fill the void space, it rather supports the neighbouring Teeth, and preserves the corresponding ones of the opposite jaw from being protruded.—Nor is this contradicted by the common observation, that the Teeth often become loose and fall out quickly, even in those who use the best made artificial pieces, and who employ the most judicious dentists: Because the same general decay or disorder, which made an artificial piece necessary at first, may easily be supposed, and is generally seen to attack the neighbouring Teeth; and they would be lost in turn, whether an artificial piece were used or not.—Or, let us grant for a moment, that an artificial piece, however well executed, is really apt to loosen a neighbouring one to which it is fastened, in the space of five or six years;—can the consideration of such a loss justly outweigh all the obvious advantages of artificial

tificial Teeth? Or, is it a matter of great concern, if a man once in five or six years is obliged to have one added to the number of his artificial Teeth?

The complaint that the natural Teeth are cut by the ligature which is used to fasten artificial ones, is owing to the fault of those who apply wire instead of silk.—Ligatures of wire certainly hurt the natural Teeth very soon, but silken twist cannot affect them in such manner in the space of a great many years.

The use of artificial Teeth is not confined to the cases where there are natural Teeth to which they may be fastened.—A whole set of artificial Teeth may be made for one or both jaws, so well fitted to admit of the necessary motions, and so conveniently retained in the proper situation, by the help of springs of a new and peculiar construction, that they will answer every purpose of natural Teeth, and can be taken out, cleaned, and replaced by the patient himself,  
with

with the greatest ease.—I say springs of a peculiar construction, because they are totally different in shape and action from those which have been used by my predecessors; because they follow all the various motions of the jaw very freely; and because the pressure which they give is always equal and gentle, whether the mouth be shut or not.

When the gums are uneven or fallen away, the patient may have recourse to the use of *Artificial Gums*. This term sounds strangely, and makes no small shew in an advertisement. But the contrivance is nothing more than an artificial set of Teeth, carved, and stained at the lower edge, to represent the healthy gums. The deception is certainly good, and answers the purpose so well, that nobody in common conversation can distinguish the *artificial* from the *natural* gums.

F I N I S.





